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OBSTETRICAL TRANSACTIONS.

VOL. XXXIII.

TRANSACTIONS

OF THE

OBSTETRICAL SOCIETY

OF

LONDON.

VOL. XXXIII.

FOR THE YEAR 1891.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

EDITED BY

ALBAN DORAN, SENIOR SECRETARY,

AND

F. H. CHAMPNEYS, M.D.

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1892.

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Sharpin, Henry W.	Bedford.
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Walters, James Hopkins	Reading.
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Anderson, Izett W., M.D.	Jamaica.
Takaki, Kanaheiro	Japan.

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BRITISH SUBJECTS.

Elected

1871 KEILLER, ALEXANDER, M.D., F.R.S. Ed., Physician to the Royal Maternity Hospital, Lecturer on Midwifery and Diseases of Women and Children at Surgeons' Hall, Edinburgh; 21, Queen street, Edinburgh.

1871 KIDD, GEORGE H., M.D., F.R.C.S.I., Obstetrical Surgeon to the Coombe Lying-in Hospital; 30, Merrion square south, Dublin.

1892 LISTER, Sir JOSEPH, Bart., F.R.S., LL.D., 12, Park crescent, Portland place, N.W.

1892 TURNER, Sir WILLIAM, F.R.S., Professor of Anatomy, University of Edinburgh; 6, Eton terrace, Edinburgh.

1870 WEST, CHARLES, M.D., F.R.C.P., Foreign Associate of the Academy of Medicine of Paris; Kenilworth, Eaton road, West Brighton. *Pres.* 1877-8.

FOREIGN SUBJECTS.

1892 CREDÉ, CARL S. F., M.D., Professor of Obstetrics and Gynæcology, University of Leipzig.

Elected

1866 LAZAREWITCH, J., M.D., Professor Emeritus and Physician to the Maximilian Hospital; Spaskaja, 2, St. Petersburg. *Trans.* 3.

1862 LUSK, WILLIAM THOMPSON, M.D., Professor of Obstetrics, Bellevue Hospital Medical College, New York.

1864 PAJOT, CH. M.D., late Professor of Midwifery to the Faculty of Medicine, Paris.

1877 STOLTZ, Professor, M.D. Nancy.

1891 TARNIER, STÉPHANE, M.D., Professor of Obstetrics, Faculté de Médecine de Paris; 15, Rue Duphot, Paris.

1872 THOMAS, T. GAILLARD, M.D., Professor of Obstetrics in the College of Physicians and Surgeons; 296, Fifth avenue, New York.

1862 VIRCHOW, RUDOLF, M.D., Professor of Pathological Anatomy in the University of Berlin.

CORRESPONDING FELLOWS.

1873 MARTIN, A. E., M.D., Berlin. *Trans.* 1.

1876 BUDIN, P., M.D., 129, Boulevard St. Germain, Paris. *Trans.* 1.

1876 CHADWICK, JAMES R., M.A., M.D., Physician for Diseases of Women, Boston City Hospital; Clarendon street, Boston, Massachusetts, U.S.

1877 GOODELL, WILLIAM, A.M., M.D., Professor of Gynecology in the University of Pennsylvania; 1418, Spruce street, Philadelphia, Pennsylvania.

1877 STORER, HORATIO R., M.D., Newport, Rhode Island, U.S.A.

ORDINARY FELLOWS.

1892.

Those marked thus (*) have paid the Composition Fee in lieu of further annual subscriptions.

The letters O.F. are prefixed to the names of the "Original Fellows" of the Society.

Elected

1887 Achard, Alexander Louis, M.D., 9, Blandford street, Portman square, W.

1890 Ackerley, Richard, M.B., B.S.Oxon., Alexandra House, Ashburton, Devon.

1891 Adams, Charles Edmund, 1, Oak Villas, Gipsy road, West Norwood, S.E.

1884 Adams, Thomas Rutherford, M.D., Stamford House, 78, St. James's road, Croydon.

1890 Addinsell, Augustus W., M.B., C.M.Edin., 30, Ashburn place, South Kensington, S.W.

1883 Allan, Robert John, L.R.C.P.Ed., The Glen, Summer hill, Sydney, New South Wales. [Per Alexander Allan, Esq., Glen House, The Valley, Scarborough.]

1890 Allan, Thomas E., L.R.C.P. & S.Ed., 7, Salford terrace, Tonbridge.

1873 Allen, Henry Marcus, F.R.C.P. Ed., 20, Regency square, Brighton.

1887 Ambrose, Robert, B.A., L.R.C.P. & S.Ed., 1, Mount place, Whitechapel road, E.

1878 Anderson, Izett William, M.D., 95, Duke street, Kingston, Jamaica. *Trans.* 1. *Hon. Loc. Sec.*

1875 Anderson, John Ford, M.D., C.M., 41, Belsize park, N.W. *Council*, 1882.

Elected

1866* Andrews, Henry Charles, M.D., 11, Addison terrace, Notting hill, W. *Council*, 1882-3.

1859 Andrews, James, M.D., Everleigh, Green hill, Hampstead, N.W. *Council*, 1881.

1888 Annacker, Ernest, M.D., Berlin, 292, Oxford road, Manchester.

1890 Anson, George Edward, M.A., M.D.Cantab., St. Thomas's Hospital, S.E.

1884 Appleford, Stephen Herbert, L.R.C.P. Lond., 17, Finsbury circus, E.C.

1870* Appleton, Robert Carlisle, The Bar House, Beverley.

1884 Appleton, Thomas A., 46, Britannia road, Fulham, S.W.

1883 Archibald, John, M.D., Woodhouse Eaves, Loughborough.

1871 Argles, Frank, L.R.C.P. Ed., Hermon Lodge, Wanstead, Essex, N.E. *Council*, 1886-7.

1888 Armstrong, James, M.B. Edin., 84, Rodney street, Liverpool.

1886 Ashe, William Percy, L.R.C.P. Lond., Ivy Bank, Chislehurst.

O.F. Aveling, James H., M.D., Consulting Physician to the Chelsea Hospital for Women; 1, Upper Wimpole street, W. *Council*, 1865-66, 1872, 1884. *Hon. Sec.* 1873. *Hon. Lib.* 1874-6. *Vice-Pres.* 1877-8. *Board Exam. Midwives*, 1872, 1875-77, *Chairman*, 1878-83. *Trans.* 9.

1872 Ayling, Arthur H. W., 94a, Great Portland street, W.

1887 Bailey, Henry Frederick, The Hollies, Lee terrace, Lee, S.E.

1887 Baker, Oswald, L.R.C.P. & S. Ed., Surgeon-Major, Indian Army, Simla, India.

1880 Balls-Headley, Walter, M.D., F.R.C.P., 4, Collins street east, Melbourne, Victoria.

1869* Bantock, George Granville, M.D., Surgeon to the Samaritan Free Hospital; 12, Granville place, Portman square, W. *Council*, 1874-6. *Trans.* 2.

Elected

1886* Barbour, A. H. Freeland, M.D.Edin., 8, Melville crescent, Edinburgh.

O.F. Barnes, Robert, M.D., F.R.C.P., Consulting Obstetric Physician to St. George's Hospital; 15, Harley street, Cavendish square, W. *Vice-Pres.* 1859-60. *Council,* 1861-62, 1867. *Treas.* 1863-64. *Pres.* 1865-66. *Trans.* 32. *Trustee.*

1875 Barnes, R. S. Fancourt, M.D., Physician to the Chelsea Hospital for Women ; 7, Queen Anne street, Cavendish square, W. *Council,* 1879-81. *Board Exam. Midwives,* 1880-2. *Trans.* 2.

1877 Barnes, Thomas Henry, M.D., 105, London road, Croydon.

1884 Barraclough, Robert W. S., M.D., 34, Dulwich road, Herne hill, S.W.

1886 Barrington, Fourness, M.B.Edin. (c/o The Commercial Bank of Sydney, 18, Birchin Lane, E.C.)

1891 Barton, Edwin Alfred, L.R.C.P.Lond., 35, Cheniston Gardens, Kensington, W.

1887 Barton, Henry Thomas, 61, Harford street, E.

1887 Barton, William Edwin, L.R.C.P. Lond., Staunton-on-Wye, near Hereford.

1861* Bartrum, John S., F.R.C.S., Surgeon to the Bath General Hospital; 13, Gay street, Bath. *Council,* 1877-9.

1866 Bassett, John, M.D., Professor of Midwifery at the Queen's College, Birmingham ; 144, Hockley hill, Birmingham. *Council,* 1874-6. *Vice-Pres.* 1880-2. *Trans.* 3.

1873 Bate, George Paddock, M.D., 412, Bethnal Green road, N.E. ; and 2, Northumberland Houses, King Edward road, Hackney. *Council,* 1882-4.

1887 Baumgartner, Henry Spelman, M.B. Durh., Saville place, Newcastle-on-Tyne.

1871 Beach, Fletcher, M.B., F.R.C.P., Darenth Asylum, Dartford, Kent.

1871 Beadles, Arthur, Park House, Dartmouth Park, Forest hill, S.E.

Elected

1892 Beauchamp, Sydney, M.B., B.C.Cantab., 146, Cromwell road, S.W.

1866* Belcher, Henry, M.D., 28, Cromwell road, West Brighton.

1871 Bell, Robert, M.D. Glasg., 29, Lynedoch street, Glasgow.

1880 Benington, Robert Crewdson, M.B., 59, Osborne Road, Newcastle-on-Tyne.

1889 Benson, Matthew, M.D.Brux., 35, Dicconson street, Wigan.

1883 Bertolacci, J. Hewetson, care of Dr. March, Woodlawn, Spencer park, New Wandsworth, S.W.

1889 Best, William James, 1, Cambridge terrace, Dover.

1891 Beville, Frederick Wells, L.R.C.P.Lond., The Firs, Palace road, East Molesey.

1887 Biden, Charles Walter, L.R.C.P.Lond., Laxfield, Framlingham.

1879 Biggs, J. M., Hillside, Child's hill, N.W.

1892 Bird, Matthew Mitchell, M.D., B.S.Durh., St. Mary's Hospital, W.

1889 Bisshopp, Francis Robert Bryant, M.A., M.B., B.C. Cantab., Belvedere, Mount Pleasant, Tunbridge Wells.

1890 Black, George, M.B., B.S.Lond., 50, Cazenove road, Stamford hill, N.

1868* Black, James Watt, M.A., M.D., F.R.C.P., Obstetric Physician to the Charing Cross Hospital; 15, Clarges street, Piccadilly, W. *Council*, 1872-4. *Vice-Pres.* 1885-6. *Chairman, Board Exam. Midwives*, 1887-90. *Pres.* 1891-2.

1861* Blake, Thomas William, Hurstbourne, Bournemouth, Hants.

1872 Bland, George, Surgeon to the Macclesfield Infirmary Park Green, Macclesfield.

1887 Bluett, George Mallack, L.R.C.P. Lond., 3, Priory road, Bedford park, Chiswick.

Elected

1892 Bond, William Arthur, M.A., M.D., B.S.Cantab., Queen Charlotte's Hospital, N.W.

1883 Bonney, William Augustus, M.D., 145, Beaufort street, Chelsea, S.W.

1866* Boulton, Percy, M.D., Physician to the Samaritan Free Hospital; 6, Seymour street, Portman square, W. *Council*, 1878-80, 1885. *Hon. Lib.* 1886. *Hon. Sec.* 1886-9. *Vice-Pres.* 1890-92. *Board Exam. Midwives*, 1890-91. *Trans.* 4.

1886 Boustead, Robinson, M.D., Surgeon-Major, Indian Army; 10, Palmeira avenue, Hove, Brighton (c/o Messrs. H. S. King and Co., 45, Pall Mall, S.W.)

1877 Bowkett, Thomas Edward, 145, East India road, Poplar, E. *Council*, 1890.

1884* Boxall, Robert, M.D., Assistant Obstetric Physician to, and Lecturer on Practical Midwifery at, the Middlesex Hospital; 29, Weymouth street, Portland place, W. *Council*, 1888-90. *Board Exam. Midwives*, 1891. *Trans.* 10.

1884 Boys, Arthur Henry, L.R.C.P. Ed., Chequer Lawn, St. Albans.

1886 Bradbury, Harvey K., 7, Horninglow street, Burton-on-Trent.

1877 Bradley, Michael McWilliams, M.B., Jarrow-on-Tyne.

1873 Braithwaite, James, M.D., Obstetric Physician to the Leeds General Infirmary; Lecturer on Diseases of Women and Children at the Leeds School of Medicine; 16, Clarendon road, Little Woodhouse, Leeds. *Vice-Pres.* 1877-9. *Trans.* 4. *Hon. Loc. Sec.*

1880 Branfoot, Arthur Mudge, M.B., Superintendent of the Government Lying-in Hospital, Madras, and Professor of Midwifery and Diseases of Women and Children in the Madras Medical College, Pantheon road, Madras. *Hon. Loc. Sec.*

1887 Bridger, Adolphus Edward, M.D. Ed., 16, Orchard street Portman square, W.

Elected

1888* Briggs, Henry, M.B., F.R.C.S., Surgeon to the Hospital for Women, and Hon. Med. Officer to the Lying-in-Hospital, Liverpool; 3, Rodney street, Liverpool.

1864 Bright, John Meaburn, M.D., Alvaston, Park hill, Forest hill, S.E. *Council*, 1873-74.

1869 Brisbane, James, M.D., 16, St. John's Wood road, N.W.

1885 Briscoe, John Frederick, The Lammas, Esher, Surrey.

1887 Brodie, Frederick Carden, M.B., Oak street, Fakenham, Norfolk.

1866 Brodie, George B., M.D., Consulting Physician-Accoucheur to Queen Charlotte's Lying-in Hospital; 3, Chesterfield street, Mayfair, W. *Council*, 1873-75. *Vice-Pres.*, 1889.

1892 Brodie, William Haig, M.D., C.M.Edin., 88, Oxford terrace, Hyde park, W.

1889 Brook, William Henry B., M.D. Lond., F.R.C.S., County Hospital, Lincoln.

1876 Brookhouse, Charles Turing, M.D., 43, Manor road, Brockley, S.E.

1889 Brown, Alfred, M.A., M.B., C.M. Aber., Claremont, Higher Broughton, Manchester.

1868 Brown, Andrew, M.D. St. And., 1, Bartholomew road, Kentish town, N.W. *Trans.* 1.

1865* Brown, D. Dyce, M.D., 29, Seymour street, Portman square, W.

1889* Brown, William Carnegie, M.D. Aber., Penang, China.

1876 Brunjes, Martin, 33a, Gloucester place, Portman square, W.

1865 Brunton, John, M.D., M.A., Surgeon to the Royal Maternity Charity; 21, Euston road, N.W. *Council*, 1871-3. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877-82. *Trans.* 6.

1883 Buksh, Raheem, Liverpool House, Balaam street, Plaistow, E.

1882* Buller, Audley Cecil, M.D., Oxford and Cambridge Club, Pall Mall, S.W.

Elected

1885* Bunny, J. Brice, L.R.C.P. Ed., Newbury.

1877 Burchell, Peter Lodwick, M.B., Delamers, Bradwell-on-Sea, Southminster, S.O., Essex. *Council*, 1882-4. *Vice.-Pres.* 1885-7. *Board Exam. Midwives*, 1884-7. *Trans.* 1.

1877 Burd, Edward, M.D., M.C., Senior Physician to the Salop Infirmary; Newport House, Shrewsbury. *Council*, 1886-7. *Hon. Loc. Sec.*

1891 Burgess, Edward Arthur, 19, Ash grove, Cricklewood, N.W.

1888 Burton, Herbert Campbell, L.R.C.P. Lond., Lee Park Lodge, Blackheath, S.E.

1878 Butler-Smythe, Albert Charles, L.R.C.P.Ed., 76, Brook street, Grosvenor square, W. *Council*, 1889-91.

1887* Buxton, Dudley W., M.D. Lond., 82, Mortimer street, Cavendish square, W.

1886 Byers, John W., M.D., Physician for Diseases of Women to the Royal Hospital, Belfast; Lower crescent, Belfast.

1883 Caldwell, William T. D., M.D., 209, Brixton road, S.W.

1891 Calthrop, Lionel C. Everard, L.R.C.P.Lond., London Hospital.

1887 Cameron, James Chalmers, M.D., Professor of Midwifery and Diseases of Infancy, McGill University; 941, Dorchester street, Montreal.

1887 Cameron, Murdoch, M.D. Glas., 7, Newton terrace, Charing Cross, Glasgow.

1888* Campbell, William Macfie, M.D. Edin., 1, Princes gate East, Liverpool.

1861 Candlish, Henry, M.D., 6, Barns street, Ayr, N.B.

1886 Carpenter, Arthur Bristowe, M.A., M.B. Oxon., Wykeham House, Bedford park, Croydon.

1872 Carter, Charles Henry, M.D., Physician to the Hospital for Women, Soho square; 45, Great Cumberland place, Hyde park, W. *Council*, 1880-2. *Trans.* 4.

Elected

1890 Carter, Robert James, M.B.Lond., 4, St. John's Wood terrace, N.W.

1877 Carver, Eustace John, 3, Fulham park villas, Fulham, S.W.

1887 Case, William, 34, Westbourne road, Arundel square, N.

1863 Cayzer, Thomas, Mayfield, Aigburth, Liverpool.

1875 Chaffers, Edward, F.R.C.S., 54, North street, Keighley, Yorkshire.

1876* Champneys, Francis Henry, M.A., M.D. Oxon., F.R.C.P., Physician-Accoucheur to, and Lecturer on Midwifery at, St. Bartholomew's Hospital; 42, Upper Brook street, W. *Council*, 1880-1. *Hon. Lib.* 1882-3. *Hon. Sec.* 1884-7. *Vice-Pres.* 1888-90. *Board Exam. Midwives*, 1883, 1888-90; *Chairman*, 1891-92. *Trans.* 16.

1859 Chance, Edward John, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 14, Russell square, W.C.

1867* Charles, T. Edmondstoune, M.D., Cannes, France. *Council*, 1882-4.

1874 Charlesworth, James, Physician to the North Staffordshire Infirmary; 25, Birch terrace, Hanley, Staffordshire.

1886 Charpentier, Ambrose E. L., M.D. Durh., 60, High street, Uxbridge.

1868* Child, Edwin, "Vernham," New Malden, Kingston-on-Thames, Surrey.

1890 Childe, Charles Plumley, B.A., L.R.C.P.Lond., Cranleigh, Kent road, Southsea.

1883 Childs, Christopher, M.A., M.D. Oxon., 2, Royal terrace, Weymouth. *Hon. Loc. Sec.*

1863* Chisholm, Edwin, M.D., Abergeldie, Ashfield, near Sydney, New South Wales. [Per Messrs. Turner and Henderson, care of Messrs. W. Dawson, 121, Cannon street, E.C.].

Elected

1885 Chittenden, Thomas Hillier, L.R.C.P. Lond., Garden House, Wheathampstead, Herts.

1883 Clapham, Edward, M.D., 29, Lingfield road, Wimbledon. *Council*, 1892.

1859 Claremont, Claude Clarke, Millbrook House, 1, Hampstead road, N.W.

1879 Clarke, Reginald, South Lodge, Lee park, Lee, S.E.

O.F. Clay, Charles, M.D., Tower Lodge, Poulton-le-Fylde, Lancashire.

1876 Clay, George Langsford, West View, 443, Moseley road, Highgate, Birmingham.

O.F. Clay, John, Professor of Midwifery, Queen's College, Birmingham; Allan House, Steelhouse lane, Birmingham. *Council*, 1868-69. *Vice-Pres.* 1872-4.

1889 Clemow, Arthur Henry Weiss, M.D., C.M. Edin., 2, Talgarth road, West Kensington, W.

O.F. Cleveland, William Frederick, M.D., Stuart villa, 199, Maida vale, W. *Council*, 1863-64. *Vice-Pres.* 1875-77, 1887-89. *Trans.* 1.

1881 Close, James Alex., M.B., 2031, Olive street, St. Louis, Missouri, U.S.A.

1865* Coates, Charles, M.D., Physician to the Bath General and Royal United Hospitals; 10, Circus, Bath.

1882 Coates, Frederick William, M.D., St. John street, Salisbury. *Council*, 1891-92. *Hon. Loc. Sec.*

1875 Coffin, Richard Jas. Maitland, F.R.C.P. Ed., 98, Earl's Court road, W.

1878 Coffin, Thomas Walker, 22, Upper Park road, Haverstock hill, N.W.

1875* Cole, Richard Beverly, M.D. Jefferson Coll. Philad., 218, Post street, San Francisco, California, U.S.

1888 Collins, Edward Tenison, Campden House, Oakfield road, Selly park, Birmingham.

1877 Colman, Walter Tawell.

Elected

1866 Coombs, James, M.D., Bedford.

1874 Cooper, Herbert, L.R.C.P. Ed., Thurlow House, Hampstead, N.W.

1888 Cooper, Peter, L.R.C.P.Lond., Stainton Lodge, 35, Shooter's Hill road, Blackheath, S.E.

1890 Copeland, William Henry Laurence, M.B.Cantab., 59, Warwick road, Earl's Court, S.W.

1888 Corby, Henry, B.A., M.D., 62, South Mall, Cork.

1875* Cordes, Aug., M.D., M.R.C.P., Consulting Accoucheur to the "Miséricorde;" Privat Docent for Midwifery at the University of Geneva; 12, Rue Bellot, Geneva. *Trans.* 1.

1883 Corner, Cursham, 113, Mile End road, E.

1888 Cornish, Charles Newton, L.R.C.P. Ed., Bushey Heath, Herts.

1860* Corry, Thomas Charles Steuart, M.D., Senior Surgeon to the Belfast General Dispensary; Ormeau terrace, Belfast. *Council*, 1867. *Vice-Pres.* 1891-92. *Hon. Loc. Sec.*

1888 Cory, Isaac Rising, L.R.C.P. Lond., Shere, Guildford.

1875 Cory, Robert, M.D., Assistant Obstetric Physician to St. Thomas's Hospital; 73, Lambeth Palace road, S.E. *Council*, 1879-81, 1884-5. *Vice-Pres.* 1887-88. *Trans.* 1.

1886 Cox, Joshua John, M.D. Ed., St. Ronan's, Clarendon road, Eccles, Manchester.

1869 Cox, Richard, M.D. St. And., Theale, near Reading. *Trans.* 1.

1877 Crawford, James, M.D. Durh., 4, Iddesleigh Mansions, Victoria street, S.W.

1882 Crease, James Robertson, F.R.C.S. Ed., 2, Ogle terrace, South Shields.

1881 Creasy, James Gideon, Rectory lodge, Brasted, Sevenoaks.

1883 Cremen, Patrick John, M.D., 4, Camden place, Cork.

Elected

1876 Crew, John, Manor House, Higham Ferrers, Northamptonshire.

1889 Croft, Edward Octavius, L.R.C.P. Lond., 8, Clarendon road, Leeds.

1881 Cronk, Herbert George, M.B. Cantab., Repton, near Burton-on-Trent.

1886* Cross, William Joseph, M.B., Horsham, Victoria, Australia.

1889 Crouch, Edward Thomas, Lee House, Stoke road, Gosport.

1875* Cullingworth, Charles James, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Obstetric Medicine at, St. Thomas's Hospital; 46, Brook street, Grosvener square, W. *Council*, 1883-5, 1891-92. *Vice-Pres.* 1886-8. *Board Exam. Midwives*, 1889-91. *Trans.* 7.

1859 Curgenven, J. Brendon, Teddington Hall, Teddington, S.W. *Council*, 1870-72. *Trans.* 3.

1889* Cursetji, Jehángir J., M.D. Brux., 94, Chundunwádi, Bombay.

1885 Dakin, W. Radford, M.D., Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital; 57, Welbeck street, Cavendish square, W. *Council*, 1889-91. *Hon. Lib.* 1892. *Trans.* 3.

1868 Daly, Frederick Henry, M.D., 185, Amhurst road, Hackney Downs, N.E. *Council*, 1877-9. *Vice-Pres.* 1883-5. *Trans.* 2.

1882 Dambrill-Davies, William R., Alderley Edge, Cheshire.

1888 Dane, Robert, General Hospital, Singapore, Straits Settlements.

1884 Darwin, George Henry, M.R.C.P., The Cedars, Albert park, Didsbury, near Manchester.

1889 Davies, Frederick Henry, M.B., C.M.Edin., Tilbury, Essex.

1876 Davies, Gomer, L.R.C.P. Ed., 9, Pembridge villas, Bayswater, W.

Elected

1884 Davies, John, 91, New North road, N.

1885 Davies, William Morriston, M.D., 55, Gordon square, W.C.

1877 Dawson, Smith Houston, M.D., Campden villa, 203, Maida vale, W. *Council*, 1889-91.

1891 Dawson, Ernest, L.R.C.P.Lond., The Mount, Hampstead, N.W.

1889 Dawson, William Edward, L.K.Q.C.P. & L.M., 83, Chiswell street, E.C.

1880 Day, William Hankes, Surgeon to the City Prisons, Norwich; 3, Surrey street, Norwich. *Trans.* 1.

1859 Day, William Henry, M.D., Physician to the Samaritan Free Hospital for Women and Children; 10, Manchester square, W. *Council*, 1873-75. *Vice-Pres.* 1885-6.

1889 Des Vœux, Harold A., M.D.Brux., 4, Ashley gardens, Victoria street, S.W.

1877 Dewar, John, L.R.C.P. Ed., 132, Sloane street, S.W.

1879 Dolan, Thomas Michael, M.D., Horton house, Halifax.

1886 Donald, Archibald, M.A., M.D. Edin., 274, Oxford road, Manchester. *Trans.* 1.

1879* Doran, Alban H. G., F.R.C.S., Surgeon to the Samaritan Free Hospital; 9, Granville place, Portman square, W. *Council*, 1883-5. *Hon. Lib.* 1886-7. *Hon. Sec.* 1888-91. *Vice-Pres.* 1892. *Trans.* 11.

1890 Douty, Edward Henry, M.A., M.B., B.C. Cantab., 69, Bridge street, Cambridge.

1887 Dovaston, Milward Edmund, 81, Queen's crescent, Haverstock hill, N.W.

1880 Downes, Denis Sidney, L.K.Q.C.P. I., 55, Kentish town road, N.W.

1884 Doyle, E. A. Gaynes, L.R.C.P., Colonial Hospital, Port of Spain, Trinidad.

O.F. Drage, Charles, M.D., Hatfield, Herts. *Council*, 1861-4. *Trans.* 1.

Elected

1885 Drage, Lovell, M.A., M.B., B.S. (Oxon), Burleigh Mead, Hatfield.

1871 Drake-Brockman, Edward Forster, F.R.C S., L.R.C.P. Lond., Surgeon-Major; Superintendent Eye Infirmary, Madras; Professor of Physiology and Ophthalmology, Madras Medical College. [*Per* Messrs. Richardson and Co., East India Army Agency, 25, Suffolk street, Pall Mall, S.W.]

1884 Drake, Charles Henry, 204, Brixton hill, S.W.

1884 Duke, John C., The Glen, Lewisham, S.E.

1883 Duncan, Alexander George, M.B., 25, Amhurst park, Stamford hill, N.E.

O.F. Duncan, James, M.B., 8, Henrietta street, Covent garden, W.C. *Council*, 1873-74.

1882 Duncan, William, M.D., Obstetric Physician to, and Lecturer on Obstetric Medicine at, the Middlesex Hospital; 6, Harley street, W. *Council*, 1885-6, 1888-89. *Hon. Lib.* 1890-91. *Hon. Sec.* 1892. *Trans.* 2.

1891 Eady, George John, M.D.Brux., Glengarry, West End lane, West Hampstead, N.W.

1871 Eastes, George, M.B., F.R.C.S., 35, Gloucester place, Hyde park, W. *Council*, 1878-80.

1883 Eccles, F. Richard, M.D., Professor of Physiology, Western University; 1, Ellwood place, Queen's avenue, London, Ontario, Canada.

1890 Ehrmann, Albert, L.R.C.P.Lond., Bitterne, near Southampton.

1879 Elder, George, M.D., C.M., Surgeon to the Samaritan Hospital for Women, Nottingham; 17, Regent street, Nottingham.

1878 Ellery, Richard, L.R.C.P. Ed., Plympton, Devon.

1873 Engelmann, George Julius, A.M., M.D., 3003, Locust street, St. Louis, Missouri, U.S.

Elected

1884 English, Thomas Johnston, M.D., 128, Fulham road, S.W.

1892 Evans, John Morgan, L.R.C.P.Lond., Llandrindod Wells, Radnorshire.

1875 Ewart, John Henry, Eastney, Devonshire place, Eastbourne.

1876 Farncombe, Richard, 40, Belgrave street, Balsall heath, Birmingham.

1869 Farquhar, William, M.D., Deputy Surgeon-General, Coonoor, Neilgherries, Madras.

1861 Farr, Geo. F., L.R.C.P. Ed., Slade House, 175, Kennington road, S.E. *Council*, 1885.

1882 Farrar, Joseph, M.D., Gainsborough.

1868* Fegan, Richard, M.D., Westcombe park, Blackheath, S.E.

1888 Fegen, Charles Milton, Devonshire House, Brandon, Suffolk.

1886 Fennell, David, L.K.Q.C.P.I., 35, The Grove, Highbury, N.

1883 Fenton, Hugh, M.D., 27, George street, Hanover square, W.

1886 Fisher, Frederick Bazley, L.R.C.P. Lond., West Walk, Dorchester.

1882 Fitzgerald, Charles Egerton, M.D., West Terrace, Folkestone. *Hon. Loc. Sec.*

1877* Fonmartin, Henry de, M.D., 1, Anchor Gate terrace, Portsea.

1884 Ford, Alexander, L.R.C.P. Ed., 9, Beresford street, Waterford.

1877* Ford, James, M.D., Eltham, Kent.

1884 Fouracre, Robert Perriman, 20, Tollington park, N.

1886 Fowler, Charles Owen, M.D., Trevor Lodge, Thornton heath, S.W.

1875* Fraser, Angus, M.D., Physician and Lecturer on Clinical Medicine to the Aberdeen Royal Infirmary; 232, Union street, Aberdeen.

Elected

1888 Fraser, James Alexander, L.R.C.P. Lond., Western Lodge, Romford.

1867 Freeman, Henry W., 24, Circus, Bath. *Council*, 1891-92.

1880 Fry, John Blount, Ashley Lodge, Esher, Surrey.

1883 Fuller, Henry Roxburgh, M.D. Cantab., 45, Curzon street, Mayfair, W. *Trans.* 1.

1886 Furner, Willoughby, F.R.C.S., 2, Brunswick place, West Brighton. *Hon. Loc. Sec.*

1874* Galabin, Alfred Lewis, M.A., M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, Guy's Hospital; 49, Wimpole street, Cavendish square, W. *Council*, 1876-78. *Hon. Lib.* 1879. *Hon. Sec.* 1880-3. *Vice-Pres.* 1884. *Treas.* 1885-8. *Pres.* 1889-90. *Trans.* 12.

1888 Galloway, Arthur Wilton, L.R.C.P. Lond., 79, New North road, N.

1863 Galton, John H., M.D., Chunam, Sylvan road, Upper Norwood, S.E. *Council*, 1874-6, 1891-92.

1881 Gandy, William, Hill Top, Central hill, Norwood, S.E.

1886 Garde, Henry Croker, F.R.C.S. Edin., Maryborough, Queensland.

1887 Gardiner, Bruce H. J., L.R.C.P. Ed., Gloucester House, Barry road, East Dulwich, S.E.

1879 Gardner, John Twiname, Northfield House, Ilfracombe.

1872 Gardner, William, M.A., M.D., Professor of Gynæcology, McGill University; Gynæcologist to the Montreal General Hospital; 109, Union avenue, Montreal, Canada.

1892 Gardner, William, M.B., C.M.Glas., Melbourne (c/o The Manager, Commercial Bank of Australia, 1, Bishopsgate street Within, E.C.).

1876 Garner, John, 52, New Hall street, Birmingham.

1891 Garrett, Arthur Edward, L.R.C.S., & L.M.Ed., The Limes, Rickmansworth.

Elected

1873 Garton, William, M.D., F.R.C.S., 58, Bagot street, Wavertree, near Liverpool.

1889* Gell, Henry Willingham, M.A., M.B. Oxon., 43, Albion street, Hyde park, W.

1859* Gervis, Henry, M.D., F.R.C.P., Consulting Obstetric Physician to St. Thomas's Hospital; 40, Harley street, Cavendish square. *Council*, 1864-66, 1889-91. *Hon. Sec.* 1867-70. *Vice-Pres.* 1871-3. *Treas.* 1878-81. *Pres.* 1883-4. *Trans.* 8.

1866* Gervis, Frederick Heudebourck, 1, Fellows road, Haverstock hill, N.W. *Council*, 1877-9. *Vice-Pres.* 1892. *Trans.* 1.

1884 Gibb, Charles John, M.D., Westgate House, Newcastle-on-Tyne.

1875 Gibbings, Alfred Thomas, M.D., 93, Richmond road, Dalston, N.E. *Council*, 1885-6, 1888.

1883 Gibbons, Robert Alexander, M.D., Physician to the Grosvenor Hospital for Women and Children; 29, Cadogan place, S.W. *Council*, 1889-90. *Trans.* 1.

1874 Gibson, James Edward, Hillside, West Cowes, Isle of Wight.

1869 Gill, William, L.R.C.P. Lond., 11, Russell square, W.C.

1891 Gimblett, William Henry, L.R.C.P.I., 79, Amhurst road, N.E.

1891 Gledden, Alfred Maitland, M.D., 35, Mount View road, Crouch hill, N.

1871 Goddard, Eugene, M.D. Durh., North Lynne, Highbury New Park, N. *Trans.* 1.

1871 *Godson, Clement, M.D., C.M.; 9, Grosvenor street, W. *Council*, 1876-77. *Hon. Sec.* 1878-81. *Vice-Pres.* 1882-4. *Board Exam. Midwives*, 1877, 1882-86. *Trans.* 5.

1868 Godwin, Ashton, M.D., 28, Brompton crescent, Brompton, S.W.

1883 Gordon, John, M.D., 20, Wickham road, Brockley, S.E.

Elected

1869 Goss, Tregenna Biddulph, 1, The Circus, Bath. *Hon. Loc. Sec.*

1891 Gostling, William Ayton, M.D., B.S.Lond., Barningham, West Worthing.

1889 Goullet, Charles Arthur, L.R.C.P. Lond., 2, Finchley road, N.W.

1890 Gow, William John, M.D.Lond., Obstetric Physician to the Metropolitan Hospital; 13, Upper Wimpole street, W.

1885 Grant, Ogilvie, M.D., Queen Mary's House, Inverness.

1890 Gray, Harry St. Clair, M.D. Glas., 15, Newton terrace, Glasgow.

1875 Gray, James, M.D., 15, Newton terrace, Glasgow.

1890 Green, Charles David, M.D.Lond., Addison House, Upper Edmonton.

1884 Greene, Walter, L.R.C.P. Lond., Wallingford.

1887 Greenwood, Edwin Climson, L.R.C.P., 19, St. John's wood park, N.W.

1863 *Griffith, G. de Gorrequer, 34, St. George's square, S.W. *Trans.* 2.

1879* Griffith, Walter Spencer Anderson, M.D. Cantab., F.R.C.S., M.R.C.P., Assistant Physician-Accoucheur to St. Bartholomew's Hospital; 114, Harley street, W. *Council*, 1886-8. *Board Exam. Midwives*, 1887-89. *Trans.* 5.

1870 *Grigg, William Chapman, M.D., Physician to the In-patients, Queen Charlotte's Lying-in Hospital; Assistant Obstetric Physician to the Westminster Hospital; 27, Curzon street, Mayfair. *Council*, 1875-77. *Board Exam. Midwives*, 1878-79.

1888* Grimsdale, Thomas Babington, B.A., M.B. Cantab., 50, Rodney street, Liverpool.

O.F. Grimsdale, Thos. F., L.R.C.P. Ed., Consulting Surgeon to the Lying-in Hospital; 29, Rodney street, Liverpool. *Council*, 1861-62. *Vice-Pres.* 1875-76.

Elected

1882 Gripper, Walter, M.B. Cantab., The Poplars, Wallington, Surrey.

1880 Grogono, Walter Atkins, Berwick House, Broadway, Stratford, E.

1879 Grove, William Richard, M.D., St. Ives, Huntingdonshire.

1887 Growse, William, L.R.C.P.Lond., Dudley House, Kenilworth.

1887 Hackney, John, M.D. St. And., Oaklands, Hythe.

1867 Hadaway, James, L.R.C.P. Ed., Dent-de-Lion Villa, Garlinge, near Margate.

1881 Hair, James, M.D., Brinklow, Coventry.

1889 Hale, Charles D. B., M.D., 8, Sussex gardens, Hyde park, W.

1859 Hall, Frederick, 1, Jermyn street, St. James's, S.W.

1889 Hall, Frederick, M.D. St. And., St. Mark's House, Leeds.

1871 Hallowes, Frederick B., Redhill, Reigate, Surrey. *Council*, 1885-6, 1888-90.

1880 Hames, George Henry, F.R.C.S., 29, Hertford street, Park lane, W.

1887 Hamilton, John, F.R.C.S.Ed., Beechhurst House, Swadlincote, Burton-on-Trent.

1883 Handfield-Jones, Montagu, M.D.Lond., M.R.C.P., Joint-Lecturer on Midwifery at, and Physician-Accoucheur in charge of Out-patients to, St. Mary's Hospital ; 35, Cavendish square, W. *Council*, 887-89. *Trans.* 1.

1860 Hardey, Key, Surgeon to the West City Dispensary ; 4, Wardrobe place, Doctors' Commons, E.C.

1889 Hardwick, Arthur, M.D. Durh., Newquay, Cornwall.

1886 Hardy, Henry L. P., Holly Lodge, Richmond road, Kingston-on-Thames.

1889 Harper, Charles John, L.R.C.P. Lond., Church end, Finchley, N.

Elected

1877 Harper, Gerald S., M.B.Aber., 40, Curzon street, Mayfair, W.

1878 Harries, Thomas Davies, F.R.C.S., Grosvenor House, Aberystwith, Cardiganshire.

1867* Harris, William H., M.D., 78, Oxford gardens, W.

1861 Harris, William John, Church House, Heene, Worthing. *Hon. Loc. Sec.*

1880* Harrison, Richard Charlton, 13, Sandringham gardens, Ealing, W.

1890 Hart, David Berry, M.D.Edin., 29, Charlotte square, Edinburgh.

1886 Hartley, Horace, L.R.C.P. Ed., Stone, Staffordshire.

1886 Hartley, Reginald, L.R.C.P. Ed., Kirkgate House, Thirsk.

1880 Harvey, John Stephenson Selwyn, M.D.Durh., M.R.C.P., 1, Astwood road, Cromwell road, S.W.

1865 Harvey, Robert, M.D., Abbottabad, Punjab. [Per Messrs. Cochran and Macpherson, 152, Union street, Aberdeen.] *Trans.* 1. *Hon. Loc. Sec.*

1886 Harvey, Sidney Fred., L.R.C.P.Lond., 117a, Queen's Gate, S.W.

1892 Hawkins-Ambler, George Arthur, F.R.C.S.Ed., 30, Royal Park, Clifton.

1888 Haycock, Henry Edward, L.R.C.P.Ed., Trouville House, Alfreton, Derbyshire.

1873 Hayes, Thomas Crawford, M.A., M.D., F.R.C.P., Lecturer on Practical Midwifery at King's College; Obstetric Physician to King's College Hospital 17, Clarges street, Piccadilly, W. *Council*, 1876-78. *Vice-Pres.* 1890-91.

1880 Heath, William Lenton, M.D., 88a, Cromwell road, Queen's gate, S.W. *Council*, 1891. *Trans.* 1.

1890 Helme, T. Arthur, M.D. Edin., St. Mary's Hospital, Manchester.

Elected

1867 Hembrough, John William, M.D., Earsdon, Newcastle-on-Tyne.

1876* Herman, George Ernest, M.B., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; 20, Harley street, Cavendish square, W. *Council*, 1878-79. *Hon. Lib.* 1880-1. *Hon. Sec.* 1882-5. *Vice-Pres.* 1886-7. *Board Exam. Midwives*, 1886-88. *Treas.* 1889-92. *Trans.* 24.

O.F. Hewitt, Graily, M.D., F.R.C.P., F.R.S. Ed., Consulting Obstetric Physician to University College Hospital; 36, Berkeley square, W. *Hon. Sec.* 1859-64. *Treas.* 1865-66. *Vice-Pres.* 1867-68. *Pres.* 1869-70. *Trans.* 21.

1860* Hicks, John Braxton, M.D., F.R.C.P., F.R.S., Physician-Accoucheur to, and Lecturer on Midwifery and Diseases of Women at, St. Mary's Hospital; 34, George street, Hanover square. *Council*, 1861-2, 1869. *Hon. Sec.* 1863-65. *Vice-Pres.* 1866-68. *Treas.* 1870. *Pres.* 1871-2. *Trans.* 38.

1892 Hills, Thomas Hyde, L.R.C.P.Lond., 60, St. Andrew's street, Cambridge.

1886 Hodges, Herbert Chamney, L.R.C.P. Lond., Watton, Herts. *Trans.* 1.

O.F. Hodges, Richard, M.D., F.R.C.S., 358, Camden road, N. *Trans.* 3.

1887 Hodson, Henry Algernon, L.R.C.P. Ed. & L.M., 23, Brunswick square, Brighton.

1886 Holberton, Henry Nelson, L.R.C.P. Lond., East Molesey.

1875 Hollings, Edwin, M.D., 25, Endsleigh gardens, N.W. *Council*, 1888-90.

1886 Holloway, William George, B.A., M.D. Cantab., East Sussex Hospital, Hastings.

1859 Holman, Constantine, M.D., The Barons, Reigate, Surrey. *Council*, 1867-69. *Vice-Pres.* 1870-71.

1891 Holman, Robert Colgate, Whithorne House, Midhurst, Sussex.

Elected

1864* Hood, Wharton Peter, M.D., 11, Seymour street, Portman square, W.

1872 Hope, William, M.D., Physician to Queen Charlotte's Lying-in Hospital; 56, Curzon street, Mayfair, W. *Council*, 1877-9. *Board Exam. Midwives*, 1873-4.

1884 Hopkins, John, L.R.C.P. Ed., 93, Camberwell road, S.E.

1883* Horrocks, Peter, M.D., F.R.C.P. Lond., Assistant Obstetric Physician to, and Demonstrator of Practical Obstetrics at, Guy's Hospital; 26, St. Thomas's street, S.E. *Council*, 1886-7. *Hon. Lib.* 1888-9. *Hon. Sec.* 1890-92. *Trans.* 1.

1876 Horsman, Godfrey Charles, 22, King street, Portman square, W.

1883 Hoskin, Theophilus, L.R.C.P. Lond., 186, Amhurst road, N.E.

1883 Houchin, Edmund King, L.R.C.P. Ed., 23, High street, Stepney, E.

1884 Hough, Charles Henry, Full street, Derby.

1877 Howell, Horace Sydney, M.D., East Grove House, 18, Boundary road, St. John's Wood, N.W.

1879 Hubbard, Thomas Wells, Rock House, Boughton Monchelsea, Maidstone.

1885 Hughes, Edgar A., L.R.C.P.Lond., 10, Old Cavendish street, W.

1889 Humphrys, Charles Beyer, L.R.C.P. & S. Edin., The Poplars, Horsmonden, Kent.

1884* Hurry, Jamieson Boyd, M.D. Cantab., 43, Castle street, Reading. *Council*, 1887-9. *Trans.* 2.

1878 Husband, Walter Edward, 56, Bury New road, Manchester.

1882 Hutton, Robert James, L.R.C.P.Ed., Carshalton, Stapleton Hall road, Finsbury park, N.

1883 Inman, Robert Edward, Gadshill Cottage, Higham, Kent.

1884 Irwin, John Arthur, M.A., M.D., 14, West Twenty-ninth street, New York.

Elected

1887 Jackson, G. E. Corrie, F.R.C.S. Ed., 5, Gt. Marlborough street, W.

1883 Jackson, George Henry, 6, Cliff Bridge terrace, Scarborough.

1884 Jackson, James, 15, Huntingdon street, Barnsbury, N.

1873 Jakins, William Vosper, L.R.C.P. Ed., 165, Collins street East, Melbourne.

1872 Jalland, Robert, Horncastle, Lincolnshire. *Trans.* 1.

1890 James, Charles Henry, L.R.C.P.Lond., Surg. Indian Army (care of Messrs. Grindlay and Co., 55, Parliament street, S.W.).

1877 Jamieson, Patrick, M.A., 3, St. Peter's street, Peterhead, Aberdeenshire.

1885 Jamieson, Robert Alexander, M.D., Shanghai. [Per Messrs. Henry S. King and Co., 65, Cornhill, E.C.]

1886 Jamison, Arthur Andrew, M.D. Glas., 18, Lowndes street, S.W.

1883* Jenkins, Edward Johnstone, M.B. Oxon., Australian Club, Sydney. [Per H. K. Lewis, 136, Gower street, W. C.]

1877 Jenks, Edward W., M.D., 84, Lafayette avenue, Detroit, Michigan, U.S.

1882 Jennings, Charles Egerton, F.R.C.S. Eng., Assistant Surgeon to the North-West London Hospital; 48, Seymour street, Portman square, W.

1889 Johns, Henry Douglas, L.R.C.P., The Dispensary, Gateshead.

1883 Johnson, Arthur Jukes, M.B., 52, Bloor street West, Toronto, Ontario, Canada.

1888 Johnson, John George. L.R.C.P. Lond., Concrete House, Swindon.

1877 Johnson, Samuel, M.D., 5, Hill street, Stoke-upon-Trent.

1881 Johnston, Joseph, M.D., 24, St. John's Wood park, N.W. *Council*, 1891-92.

Elected

1879 Johnston, Wm. Beech, M.D., 157, Jamaica road, Bermondsey, S.E.

1868 Jones, Evan, Ty-Mawr, Aberdare, Glamorganshire. *Council*, 1886-8. *Vice.-Pres.* 1890-91. *Hon. Loc. Sec.*

1878 Jones, H. Macnaughton, M.D., F.R.C.S.I. and Edin., 141, Harley street, Cavendish square, W.

1881 Jones, James Robert, M.B., 171, Donald street, Winnipeg, Manitoba, Canada.

1868 Jones, John, 60, King street, Regent street, W.

1887 Jones, J. Talfourd, M.B. Lond., Rose Bank, South terrace, Eastbourne.

1886 Jones, Lewis, M.D., Oakmead, Balham, S.W.

1885 Jones, P. Sydney, M.D., 16, College street, Hyde park, Sydney. [Per Messrs. D. Jones and Co., 1, Gresham buildings, Basinghall street, E.C.]

1873 Jones, Philip W., River House, Enfield.

1886 Jones, William Owen, The Downs, Bowden, Manchester.

1879 Joubert, Charles Henry, M.B. Lond., F.R.C.S. Eng., Surgeon-Major, Bengal Medical Department; Obstetric Physician to Eden Hospital, and Professor of Midwifery and Diseases of Women and Children, Calcutta Medical College; 6, Harington street, Calcutta.

1878 Judson, Thomas Robert, L.R.C.P. Lond., Hayman's Green, West Derby, Liverpool.

1875 Jukes, Augustus, M.B., N. W. Mounted Police, Regina, N.-W. Territory, Canada.

1878 Kane, Nathaniel H. K., M.D., Lanherne, Kingston hill, Surrey.

1890 Kanthack, Alfredo Antunes, F.R.C.S., St. John's College, Cambridge.

1884 Keates, William Cooper, L.R.C.P., 2, Tredegar villas, East Dulwich road, S.E.

1880 Kebbell, Alfred, Flaxton, York.

O.F. Keele, George Thomas, 81, St. Paul's road, Highbury, N. *Council*, 1885.

Elected

1883 KEELING, JAMES HURD, M.D., 267, Glossop road, Sheffield. *Hon. Loc. Sec.*

1890 KEITH, SKENE, M.B., C.M.Edin., 42, Charles street, Berkeley Square, W.

1874 KEMPSTER, WILLIAM HENRY, M.D., Oak House, Bridge road, Battersea, S.W.

1886 KENNEDY, ALFRED EDMUND, L.R.C.P. Ed., Chesterton House, Plaistow, E.

1879 KER, HUGH RICHARD, L.R.C.P. Ed., 14, Devonshire Road, Balham, S.W.

1872 KERR, NORMAN S., M.D., F.L.S., 42, Grove road, Regent's park, N.W.

1877* KERSWILL, JOHN BEDFORD, M.R.C.P. Ed., Fairfield, St. German's, Cornwall.

1878 KHORY, RUSTONJEE NASERWANJEE, M.D. Brussels, L.Med. Bombay, Physician to the Parell Dispensary, Bombay; Girgaum road, Bombay.

O.F. KIALLMARK, HENRY WALTER, 5, Pembridge gardens, Bayswater. *Council*, 1879-80.

1892 KINGSCOTE, ERNEST, M.B., C.M.Edin., Crane Cottage, Salisbury.

1860 KINGSFORD, EDWARD, F.R.C.S., Surgeon to the Sunbury Dispensary; Sunbury-on-Thames.

1872* KISCH, ALBERT, 3, Sutherland gardens, Maida vale, W.

1876 KNOTT, CHARLES, M.R.C.P. Ed., Liz Ville, Elm grove, Southsea.

1889 LAKE, GEORGE ROBERT, 72, Gloucester crescent, Hyde park, W.

1867* LANGFORD, CHARLES P., Sunnyside, Hornsey lane, N.

1883 LANGLEY, AARON, L.R.C.P. Ed., 149, Walworth road, S.E.

1886 LANKESTER, HERBERT HENRY, M.D. Lond., 1, Elm park gardens, South Kensington, S.W.

1886 LAUDER, WILLIAM, M.D. Edin., 260, Oxford road, Manchester.

1887 LAW, WILLIAM THOMAS, M.D. Edin., 9, Norfolk crescent, W.

Elected

1875 Lawrence, Alfred Edward Aust, M.D., Physician-Accoucheur to the Bristol General Hospital; 19, Richmond hill, Clifton, Bristol. *Council*, 1885-86, 1888. *Vice-Pres.*, 1889-90. *Hon. Loc. Sec. Trans.* 1.

1878 Leachman, Albert Warren, M.D., Fairley, Petersfield, Hants.

1884* Lediard, Henry Ambrose, M.D., 43, Lowther street, Carlisle. *Council*, 1890-92. *Trans.* 1.

1887 Lees, Edwin Leonard, M.D., C.M. Ed., 2, The Avenue, Redland road, Bristol.

1860 Leishman, William, M.D., Physician to the University Lying-in Hospital, Regius Professor of Midwifery in the University of Glasgow; 11, Woodside crescent, Glasgow. *Council*, 1866-68. *Vice-Pres.* 1869-70. *Trans.* 1.

1885 Lewers, Arthur H. N., M.D. Lond., M.R.C.P., Assistant Obstetric Physician to the London Hospital; 60, Wimpole street, W. *Council*, 1887-89. *Trans.* 6.

1890 Lewis, Ernest E., L.R.C.P. Lond.

1877 Lewis, John Riggs Miller, M.D., Deputy-Surgeon General Markham Lodge, Liverpool road, Kingston hill, Surrey.

1885 Lidiard, Sydney Robert, L.R.C.P. Ed., 48, Charlotte street, Hull.

1875 Liebman, Carlo, M.D. Vienna, Principal Surgeon, Trieste Civil Hospital, Trieste, Austria. *Trans.* 1.

1874 Lithgow, Robert Alexander Douglas, M.D., 27A, Lowndes street, Belgrave square, S.W.

1868 Llewellyn, Evan, L.R.C.P. Ed., The Limes, Bow road, E.

1872* Lock, John Griffith, M.A., 2, Rock terrace, Tenby.

1859 Lombe, Thomas Robert, M.D., Bemerton, Torquay.

1890 Low, Harold, M.B.Cantab., Round Hill Villa, Sydenham, S.E.

1862 Lowe, George, F.R.C.S., 5, Horninglow street, Burton-on-Trent, Staffordshire. *Council*, 1887-89. *Trans.* 2. *Hon. Loc. Sec.*

Elected

1890 LUBBOCK, EDGAR ASHLEY, L.R.C.P.Lond., 4, Westfield terrace, Fulham road, S.W.

1873 LUSH, WILLIAM JOHN HENRY, M.D.Brux., Fyfield, near Andover.

1878* LYCETT, JOHN ALLAN, M.D., The "Hollies," Graiseley, Wolverhampton.

1871 MCCALLUM, DUNCAN CAMPBELL, M.D., Emeritus Professor, McGill University; 45, Union avenue, Montreal, Canada. *Trans.* 4.

1890 MCCANN, FREDERICK JOHN, M.B., C.M.Edin., The Hospital for Sick Children, Great Ormond street, W.C. *Trans.* 1.

1890 MCCAW, JOHN DYSART, F.R.C.S., Ivy House, Lincoln road, East Finchley, N.

1879 MACKEOUGH, GEORGE J., M.D., Chatham, Ontario, Canada.

O.F. MACKINDER, DRAPER, M.D., Consulting Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire. *Council*, 1871-3. *Trans.* 2.

1886 MCMULLEN, WILLIAM, L.K.Q.C.P.I., 319A, Brixton road, S.W.

1884 MALCOLM, JOHN D., M.B., C.M., 24, Bryanston street, W.

1871 MALINS, EDWARD, M.D., Obstetric Physician to the General Hospital, Birmingham; 8, Old square, Birmingham. *Council*, 1881-3. *Vice-Pres.* 1884-6. *Hon. Loc. Sec.*

1868* MARCH, HENRY COLLEY, M.D., 2, West street, Rochdale. *Council*, 1890-92.

1887 MARK, LEONARD P., L.R.C.P. Lond., 19, Upper Berkeley street, Portman square, W.

1860 MARLEY, HENRY FREDERICK, The Nook, Padstow, Cornwall.

1862* MARRIOTT, ROBERT BUCHANAN, Swaffham, Norfolk.

1887 MARSH, O. E. BULWER, L.R.C.P. Ed., Ventnor House, Newport, Monmouthshire.

1890 MARTIN, CHRISTOPHER, M.B., C.M.Edin., 3, The Crescent, Birmingham.

Elected

1887 Mason, Arthur Henry, L.R.C.P.Lond., Oakwood, Walton-on-Thames.

1884 Massey, Hugh Holland, 2, North terrace, Camberwell, S.E.

1884 Masters, John Alfred, M.D.Durh., Westall House, Brook green, W.

1877 Maunsell, H. Widenham, A.M., M.D., Pitt and London street, Dunedin, New Zealand.

1883 Maurice, Oliver Calley, 75, London street, Reading. *Council*, 1888-90.

1890 May, Chichester Gould, M.A., M.B. Cantab., 13, Fitzwilliam square, Dublin.

1877 May, Lewis James, Bountis Thorne, Seven Sisters road, Finsbury park, N.

1884 Maynard, Edward Charles, L.R.C.P. Ed., 11, Shellons street, Folkestone.

1891 Mayner, Alfred Edgar, M.D.Montreal, 27, Sutton street, Kingston, Jamaica.

1885 Meller, Charles Booth, L.R.C.P. Ed., Cowbridge, Glamorganshire.

1886 Mennell, Zebulon, 1, Royal crescent, Notting hill, W.

1882 Meredith, William Appleton, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children; 21, Manchester Square, W. *Council*, 1886-8. *Vice-Pres.* 1891-92. *Trans.* 2.

1875* Miles, Abijah J., M.D., Professor of Diseases of Women and Children in the Cincinnati College of Medicine, Cincinnati, Ohio, U.S.

1876 Millman, Thomas, M.D., 544, Spadina avenue, Toronto, Ontario, Canada.

1880 Mills, Robert James, M.B., M.C., 35, Surrey street, Norwich.

1876 Milson, Richard Henry, M.D., 88, Finchley road, South Hampstead, N.W. *Council*, 1890.

1869* Minns, Pembroke R. J. B., M.D., Thetford, Norfolk.

Elected

1867* Mitchell, Robert Nathal, M.D., Chester House, Wickham road, Brockley, S.E.

1892 Montbrun, Domingo, M.D.Caracas, Port of Spain, Trinidad, W.I.

1877 Moon, Frederick, M.B., Bexley house, Greenwich.

1873 Moon, Robert Henry, F.R.C.S., 160, Norwood road, West Norwood, S.E.

1859 Moorhead, John, M.D., Surgeon to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1888 Morgan, George John, L.K.Q.C.P. & L.M., Dovaston House, Kinnerley, near Oswestry.

1888 Morison, Alexander, M.D. Ed., Dunnottar, 115, Green lanes, Stoke Newington, N.

1890 Morris, Charles Arthur, M.A., M.B., B.C.Cantab., F.R.C.S., 30, Ebury street, S.W.

1883 Morris, Clarke Kelly, Gordon Lodge, Charlton road, Blackheath, S.E.

1891 Mortlock, Charles, L.R.C.P.Lond., 9, Ladbroke gardens, W.

1886 Morton, Shadforth, M.D. Durham, Wellesley villas, Croydon.

1879 Moullin, James A. Mansell, M.A., M.B., Assistant Physician to the Hospital for Women and Children, 69, Wimpole street, Cavendish square, W. *Trans.* 1.

1885 Murray, Charles Stormont, L.R.C.S. and L.M. Ed., 85, Gloucester place, Portman square, W.

O.F. Musgrave, Johnson Thomas, L.R.C.P. Ed., Irlam Villa, 39, Finchley road, N.W. *Council*, 1859-60. *Trans.* 1.

1888 Myddelton-Gavey, Edward Herbert, 64, St. Matthew's street, Ipswich.

1887 Napier, A. D. Leith, M.D. Aber., 67, Grosvenor street, W. *Trans.* 1.

1859 Neal, James, M.D., Parterre, Sandown, Isle of Wight.

Elected

1882 Nesham, Thomas Cargill, M.D., Lecturer on Midwifery in the University of Durham College of Medicine at Newcastle-on-Tyne; 12, Ellison place, Newcastle-on-Tyne. *Council*, 1889-91.

1859* Newman, William, M.D., Surgeon to the Stamford and Rutland Infirmary; Barn Hill House, Stamford, Lincolnshire. *Council*, 1873-75. *Vice-Pres.* 1876-77. *Trans.* 5.

1889 Newnham, William Harry Christopher, M.A., M.B.Cantab., 1, Leicester place, Clifton, Bristol.

1873 Nicholson, Arthur, M.B. Lond., 98, Montpellier road, Brighton.

1879 Nicholson, Emilius Rowley, M.D., 11, Telford avenue, Streatham hill, S.W.

1876 Nix, Edward James, M.D., 143, Great Portland street, W. *Council*, 1889-90.

1882 Norman, John Edward, Lismore House, Hebburn-on-Tyne.

1883 Nunn, Philip W. G., L.R.C.P. Lond., Maplestead, Christchurch road, Bournemouth.

1884 Oakes, Arthur, M.D., Lachsmeade, Staveley road, Eastbourne.

1880 Oakley, John, Holly House, Wood's end, Halifax, Yorkshire.

1886 Ogle, Arthur Wesley, L.R.C.P. Lond., 90, Cannon street, E.C.

O.F. Oldham, Henry, M.D., F.R.C.P., Consulting Obstetric Physician to Guy's Hospital; 4, Cavendish place, Cavendish square, W. *Vice-Pres.* 1859. *Council*, 1860, 1865-66. *Treas.* 1861-62. *Pres.* 1863-64. *Trans.* 1. *Trustee.*

1888 Oliver, Franklin Hewitt, L.R.C.P. Lond., 2, Kingsland road, E.

1889 Oliver, James, M.D., F.R.S. Edin., F.L.S., Physician to the Hospital for Women, Soho square; 18, Gordon square, W.C.

Elected

1884 Openshaw, Thomas Horrocks, M.B., M.S., 16, Wimpole street, W.

1869 Ord, George Rice, Streatham hill, Surrey. *Council*, 1881.

1890 Orr, A. Aylmer, M.A., M.B.Oxon., 204, Earl's Court road, W.

1890 Osburn, Harold Burgess, L.R.C.P., 21, Cedars road, Clapham Common, S.W.

1877 Osterloh, Paul Rudolph, M.D. Leipzic, Physician for Diseases of Women, Diaconissen Hospital; 16, Sidonienstr., Dresden.

1889* Page, Harry Marmaduke, F.R.C.S., 4, St. Margaret's road, Oxford.

1891 Page, Herbert Markant, M.D.Brux., 16, Prospect hill, Redditch.

1883 Palmer, John Irwin, 47, Queen Anne street, Cavendish square, W.

1886 Papillon, Thomas Alexander, L.R.C.P. Ed., Burley road, Oakham.

1877* Paramore, Richard, M.D., 2, Gordon square, W.C.

1867* Parks, John, Bank House, Manchester road, Bury, Lancashire.

1887 Parsons, John Inglis, M.D.Durh., 3, Queen street, Mayfair, W.

1880 Parsons, Sidney, 78, Kensington Park road, W.

1889 Parsons, Thomas Edward, Paddock House, Ridgeway, Wimbledon.

1865* Paterson, James, M.D., Hayburn Bank, Partick, Glasgow.

1882* Peacey, William, M.B., 11, Breakspears road, Brockley, S.E.

1864 Pearson, David Ritchie, M.D., 23, Upper Phillimore place, Kensington, W.

1871 Pedler, George Henry, 6, Trevor terrace, Rutland gate, S.W.

Elected

1880 PEDLEY, THOMAS FRANKLIN, M.D., Rangoon, India. *Trans.* 1.

1881 PERIGAL, ARTHUR, M.D., New Barnet, Herts. *Council*, 1892.

1871 PERRIGO, JAMES, M.D., 163, Bleury street, Montreal, Canada. *Hon. Loc. Sec.*

1879* PESIKAKA, HORMASJI DOSABHAI, 23, Hornby row, Bombay.

1883 PETTIFER, EDMUND HENRY, 32, Stoke Newington green, N.

1879 PHIBBS, ROBERT FEATHERSTONE, M.R.C.P. Ed., 130, Elgin avenue, W.

1879 PHILLIPS, GEORGE RICHARD TURNER, 24, Leinster square, Bayswater, W. *Council*, 1891.

1882 PHILLIPS, JOHN, M.A., M.D. Cantab., M.R.C.P., Assistant Obstetric Physician to King's College Hospital; 71, Grosvenor street, W. *Council*, 1887-9. *Trans.* 7.

1891 PHILLIPS, W. E. PICTON, 9, Walsingham House, Piccadilly.

1878 PHILPOT, JOSEPH HENRY, M.D., 13, South Eaton place, S.W. *Council*, 1891.

1871* PHILPS, PHILIP GEORGE, 21, Russell road, Kensington, W.

1876 PICARD, P. KIRKPATRICK, M.D., 59, Abbey road, St. John's Wood, N.W.

1889 PINHORN, RICHARD, L.R.C.P. Lond., 5, Cambridge terrace, Dover.

1889 PLAYFAIR, DAVID THOMSON, M.D., C.M. Edin., Redwood House, Bromley, Kent.

1864* PLAYFAIR, W. S., M.D., LL.D., F.R.C.P., Physician-Accoucheur to H.I. & R.H. the Duchess of Edinburgh; Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital; 31, George street, Hanover square, W. *Council*, 1867. 1883-5. *Hon. Librarian*, 1868-9. *Hon. Sec.* 1870-72. *Vice-Pres.* 1873-5. *Pres.* 1879-80. *Trans.* 15.

1880 POCOCK, FREDERICK ERNEST, M.D., The Limes, St. Mark's road, Notting hill, W.

1883 POCOCK, WALTER, Gwydyr House, 58, Brixton hill, S.W.

1891 POLLOCK, WILLIAM RIVERS, M.B., B.C.Cantab., 66, Park street, Grosvenor square, W.

Elected

1883 Pook, William John, L.R.C.P., 2, Hemingford road, N.

1876 Pope, H. Campbell, M.D., F.R.C.S., Broomsgrove Villa, 280, Goldhawk road, Shepherd's Bush, W.

1891 Pope, Henry Sharland, M.B., B.C.Cantab., Royal Chest Hospital, City road, E.C.

1888 Popham, Robert Brooks, L.R.C.P.Lond., 67, Bartholomew road, Camden road, N.W.

1882 Porter, Joseph Francis, M.D., Helmsley, Yorkshire.

1864 Potter, John Baptiste, M.D., F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery and Diseases of Women at, the Westminster Hospital; 20, George street, Hanover square, W. *Council*, 1872-6, 1890-92. *Hon. Lib.* 1877-8. *Vice-Pres.* 1879-81. *Treas.* 1882-4. *Board Exam. Midwives*, 1883-4. *Pres.* 1885-6. *Trans.* 1.

1875 Powdrell, John, 160, Euston road, N.W.

1884 Powell, John James, L.R.C.P. Lond., Norwood Lodge, Weybridge.

1885 Praeger, Emil Arnold, Nanaimo, British Columbia.

1886 Prangley, Henry John, L.R.C.P. Lond., 160, Anerley road, Anerley.

1880* Prickett, Marmaduke, M.A.Cantab., M.D., Physician to the Samaritan Hospital; 12, Devonport street, Gloucester square, W. *Council*, 1892.

O.F.* Priestley, William O., M.D., LL.D., F.R.C.P., Consulting Obstetric Physician to King's College Hospital; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865-66. *Vice-Pres.* 1867-69. *Pres.* 1875-76. *Trans.* 6.

1876* Quirke, Joseph, L.R.C.P. Ed., The Oaklands, Hunter's road, Handsworth, Birmingham.

1861 Rasch, Adolphus A. F., M.D., Physician for Diseases of Women to the German Hospital; 7, South street, Finsbury square, E.C. *Council*, 1871-3. *Trans.* 6.

1878 Rawlings, John Adams, M.R.C.P.Ed., Preswylfa, Swansea.

1870* Ray, Edward Reynolds, Dulwich, S.E.

Elected

1860* RAYNER, JOHN, M.D., Swaledale House, Quadrant road north, Highbury New park, N.

1879 READ, THOMAS LAURENCE, 11, Petersham terrace, Queen's gate, S.W. *Council*, 1892.

1874 REES, WILLIAM, Priory House, 129, Queen's crescent, Haverstock hill, N.W.

1890 REID, GODFREY FORREST, M.D. Dubl., Bethlehem, Orange Free State, South Africa.

1879 REID, WILLIAM LOUDON, M.D., Professor of Midwifery and Diseases of Women and Children, Anderson's College; Physician to the Glasgow Maternity Hospital; 7, Royal crescent, Glasgow.

188 REMFRY, LEONARD, M.A., M.D.Cantab., 4, Harley street, W.

1889 RENTOUL, ROBERT REID, M.D., 78, Hartington road, Liverpool.

1875* REY, EUGENIO, M.D., 39, Via Cavour, Turin.

1890 REYNOLDS, JOHN, M.D.Brux., 11, Brixton hill, S.W.

1886 RICHARDSON, THOMAS ARTHUR, 87, London road, Croydon.

1872 RICHARDSON, WILLIAM L., M.D., A.M., Professor of Obstetrics in Harvard University; Physician to the Boston Lying-In Hospital; 225, Commonwealth avenue, Boston, Massachusetts, U.S.

1889 RICHMOND, THOMAS, L.R.C.P. Ed., 26, Burnbank terrace, Glasgow.

1888 RIDING, WILLIAM STEER, M.D.Edin., Buckerell Lodge, Honiton.

1872 RIGDEN, GEORGE, Surgeon to the Canterbury Dispensary; 60, Burgate street, Canterbury. *Trans.* 1. *Hon. Loc. Sec.*

1871 RIGDEN, WALTER 16, Thurloe place, S.W. *Council*, 1882-3. *Trans.* 1.

1892 ROBERTS, CHARLES HUBERT, L.R.C.P.Lond., St. Bartholomew's Hospital, E.C.

Elected

O.F.* ROBERTS, DAVID LLOYD, M.D., F.R.C.P., F.R.S. Edin., Obstetric Physician to the Manchester Royal Infirmary; and Lecturer on Clinical Midwifery and the Diseases of Women in Owens College; 11, St. John street, Deansgate, Manchester. *Council*, 1868-70, 1880-2. *Vice-Pres.* 1871-2. *Trans.* 5.

1867* ROBERTS, DAVID W., M.D., 56, Manchester street, Manchester square, W.

1890 ROBERTS, HUGH JONES, Sea View, Penygroes, R.S.O., N. Wales.

1883 ROBERTS, JOHN CORYTON, L.R.C.P. Ed., Avenue House, Peckham rye, S.E.

1874 ROBERTSON, WILLIAM BORWICK, M.D., St. Anne's, Thurlow park road, West Dulwich, S.E.

1890 ROBINSON, ARTHUR HENRY, M.D.Durh., The Infirmary, Bancroft road, S.E.

1887 ROBINSON, HUGH SHAPTER, L.R.C.P. Ed., Talfourd House, Camberwell, S.E.

1884 ROBINSON, LUKE, M.R.C.P. Lond., 217, Geary street, San Francisco, California.

1890 ROBSON, A. W. MAYO, F.R.C.S., Hillary place, Leeds.

1886 ROE, ARTHUR DUMVILLE, B.A., M.B. Cantab., West hill, Wandsworth, S.W.

1876 ROE, JOHN WITHINGTON, M.D., Ellesmere, Salop.

1874 ROOTS, WILLIAM HENRY, Canbury House, Kingston-on-Thames.

1874 ROPER, ARTHUR, Lewisham hill, Blackheath, S.E. *Council*, 1886-8.

1865* ROPER, GEORGE, M.D., Consulting Physician to the Royal Maternity Charity; Oulton Lodge, Aylsham, Norfolk. *Council*, 1875-77, 1883-5. *Vice-Pres.* 1879-81, 1889, *Board Exam. Midwives*, 1880-1, 1883-5. *Trans.* 10.

1859 ROSE, HENRY COOPER, M.D., Penrose House, Hampstead, N.W. *Council*, 1875-77. *Trans.* 4.

1883 ROSSER, WALTER, M.D., 1, Wellesley villas, Croydon.

Elected

1884 Rossiter, George Frederick, M.B., Surgeon to the Weston-super-Mare Hospital; Cairo Lodge, Weston-super-Mare.

1885 Roughton, Edmund Wilkinson, M.D., 33, Westbourne terrace, W.

1884 Roughton, Walter, L.R.C.P.Lond., Cranborne House, New Barnet.

1882 Routh, Amand, M.D., B.S., Assistant Obstetric Physician to, and Teacher of Practical Obstetrics and Gynæcology at, Charing Cross Hospital; 14a, Manchester square, W. *Council*, 1886-8 *Trans.* 2.

O.F.* Routh, Charles Henry Felix, M.D., Consulting Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-61. *Vice-Pres.* 1874-6. *Trans.* 13.

1887* Rowe, Arthur Walton, M.D. Dur., 1, Cecil street, Margate.

1881 Roworth, Alfred Thomas, Grays, Essex.

1886 Rushworth, Frank, M.B. Lond., Langdale, Goldhurst terrace, South Hampstead, N.W.

1888 Rushworth, Norman, L.R.C.P. Lond., Beechfield, Walton-on-Thames.

1886 Rutherfoord, Henry Trotter, B.A., M.B. Cantab., 46, Queen Anne street, Cavendish square, W. *Council*, 1892. *Trans.* 1.

1866 Saboia, Baron V. de, M.D., Director of the School of Medicine, Rio de Janeiro; 39, Rua dos Andrados, Rio de Janeiro. *Trans.* 2.

1864 Salter, John H., D'Arcy House, Tolleshunt D'Arcy, Kelvedon, Essex.

1875* Salzmann, Frederick William; Senior Surgeon to the Hospital for Women; 97a, Montpellier road, Brighton. *Council*, 1880-2. *Hon. Loc. Sec.*

1868* Sams, John Sutton, St. Peter's Lodge, Eltham road, Lee, S.E. *Council*, 1892.

1886 Sanderson, Robert, M.B. Oxon., 33, Montpellier road, Brighton.

Elected

1872 SANGSTER, CHARLES, 148, Lambeth road, S.E.

1870 SAUL, WILLIAM, M.D., Lyndthorpe, Boscombe, Bournemouth.

1891 SAUNDERS, FREDERICK WILLIAM, M.B., B.C.Cantab., 17, Barkston gardens, South Kensington, S.W.

1872 SAVAGE, THOMAS, M.D., Surgeon to the Birmingham and Midland Hospital for Women; 33, Newhall street, Birmingham. *Council*, 1878-80.

1877 SAVORY, CHARLES TOZER, M.D., 6, Douglas road, Canonbury, N. *Trans.* 1.

1890 SCHACHT, FRANK FREDERICK. B.A., M.D.Cantab., 168, Earl's Court road, S.W.

1870 SCOTT, JOHN, M.D., New street, Sandwich.

1888 SCOTT, PATRICK CUMIN, B.A., M.B. Cantab., 38, Shooter's Hill road, Blackheath, S.E.

1866 SEQUEIRA, JAMES SCOTT, 68, Leman street, Goodman's fields, E., and Crescent House, Cassland crescent, Cassland road, South Hackney.

1882 SERJEANT, DAVID MAURICE, M.D., 1, The Terrace, Camberwell, S.E.

1875 SETON, DAVID ELPHINSTONE, M.D., 1, Emperor's gate, S.W. *Council*, 1884.

1860 SEWELL, CHARLES BRODIE, M.D., 21, Cavendish square, W.. and 13, Fenchurch street, E.C. *Council*, 1880-2.

1887 SHANNON, R. ALEXANDER, L.R.C.P. Ed., Crofton, Orpington, Kent.

O.F. SHARPIN, HENRY WILSON, F.R.C.S., Surgeon to the Bedford General Infirmary, Bedford. *Council*, 1871-3. *Trans.* 1. *Hon. Loc. Sec.*

1887 SHAW, JOHN, M.D. Lond., Obstetric Physician to the North West London Hospital; 34, Queen Anne street, Cavendish square, W. *Trans.* 1.

1891 SHAW-MACKENZIE, JOHN ALEXANDER, M.B.Lond., 24, Savile row, W.

Elected

1890 Shillingford, Henry Bartlett, Park House, Rye lane, Peckham, S.E.

1890 Silk, John Frederick William, M.D. Lond., 29, Weymouth street, Portland place, W.

1874 Sinclair, Alexander Doull, M.D., Consulting Physician to the Boston Lying-in Hospital; 35, Newbury street, Boston, Massachusetts, U.S.

1888 Sinclair, William Japp, M.D. Aber., Honorary Physician to the Southern Hospital for Women and Children and Maternity Hospital, Manchester; and Professor of Obstetrics and Gynæcology, Owens College, Manchester; 250, Oxford road, Manchester.

1879 Slight, George, M.D., 3, Clifford street, Bond street, W.

1881 Sloan, Archibald, M.B., 272, Bath street, Glasgow.

1876 Sloan, Samuel, M.D., C.M., 5, Somerset place, Sauchiehall street West, Glasgow.

1890 Sloman, Frederick, Downford, 97A, Montpellier road, Brighton.

1861 Slyman, William Daniel, 26, Caversham road, Kentish Town, N.W. *Council*, 1881.

1867* Smith, Heywood, M.D., 18, Harley street, Cavendish square, W. *Council*, 1872-5. *Board Exam. Midwives*, 1874-76. *Trans.* 6.

1888 Smith, Howard Lyon, L.R.C.P.Lond., Buckland House, Buckland Newton, near Dorchester.

1890 Smith, Hugh, M.D.Lond., Englefield House, High street, Highgate, N.

1875 Smith, Richard Thomas, M.D., Physician to the Hospital for Women, Soho square; 53, Haverstock hill, N.W.

1886 Smith, Samuel Parsons, L.K.Q.C.P.I., Park Hyrst, Addiscombe road, Croydon.

1882 Smith, Stephen Maberly, L.R.C.P. Ed., Yarra street, Geelong, Melbourne. [Per Henry M. Smith, Holly Lodge, Chillington, Kingsbridge, South Devon.]

1879 Smith, Wm. Hugh Montgomery, L.R.C.P.Ed., 24, London road, West Croydon, Surrey.

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1876 Snell, Edmund George Carruthers, 102, Bonner road, Victoria park, N.E.

1889 Solly, Ernest, M.B. Lond., F.R.C.S. Eng., 79, Lambeth Palace road, S.E.

1868 Spaull, Barnard E., 1, Stanwick road, West Kensington, W.

1888 Spencer, Herbert R., M.D., B.S. Lond., Assistant Obstetric Physician to University College Hospital; 10, Mansfield street, Cavendish square, W. *Council*, 1890-92. *Trans.* 2.

1876 Spencer, Lionel Dixon, M.D., Brigade-Surgeon, I.M.S., Bengal Establishment [care of Messrs. Grindlay and Co., 55, Parliament street].

1882 Spooner, Frederick Henry, M.D., Maitland Lodge, Clapton, N.E.

1876 Spurgin, Herbert Branwhite, 82, Abington street, Northampton.

1884 Stevenson, Edmond Sinclair, F.R.C.S. Ed., Strathallan House, Rondebosch, Cape of Good Hope. *Trans.* 1.

1877 Stephenson, William, M.D., Professor of Midwifery, University of Aberdeen; 297, Union Street, Aberdeen. *Council*, 1881-3. *Vice-Pres.*, 1887-89. *Trans.* 2.

1873 Stewart, James, M.D., 2, Skinner street, Whitby, Yorkshire.

1875* Stewart, William, F.R.C.P. Ed., Dyrock Cottage, Prestwick, near Ayr, N.B.

1884 Stiven, Edward W. F., M.D., The Manor Lodge, Harrow.

1884 Stivens, Bertram H. Lyne, 11, Kensington gardens square, W.

1883 Stocks, Frederick, 421, Wandsworth road, S.W.

1866* Strange, William Heath, M.D., 2, Belsize avenue, Belsize park, N.W. *Council*, 1882-4.

1884 Sunderland, Septimus, M.D., 36, Bruton street, Berkeley square, W.

1886 Sutcliffe, Arthur Edwin, Chorlton Lodge, Stretford road, Manchester.

1883* Sutherland, Henry, M.A., M.D. Oxon., M.R.C.P., 6, Richmond terrace, Whitehall, S.W.

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1888 SUTTON, JOHN BLAND, F.R.C.S., 48, ueen Anne street, Cavendish square, W. *Trans.* 1.

1859* SWAYNE, JOSEPH GRIFFITHS, M.D., Physician-Accoucheur to the Bristol General Hospital; Harewood House, 74, Pembroke road, Clifton, Bristol. *Council*, 1860-61, *Vice-Pres.* 1862-64. *Trans.* 9. *Hon. Loc. Sec.*

1888* SWORN, HENRY GEORGE, L.K.Q.C.P. & L.M., 16, Albion road, Holloway road, N.

1883 TAIT, EDWARD SABINE, M.D., 48, Highbury park, N. *Council*, 1892. *Trans.* 1.

1879 TAIT, EDWARD W., 48, Highbury park, N. *Council*, 1886-7.

1871 TAIT, LAWSON, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women; 7, The Crescent, Birmingham. *Trans.* 12.

1880 TAKAKI, KANAHEIRO, F.R.C.S., 10, Nishi-Konyachō, Kiō-bashika, Tokio, Japan. *Hon. Loc. Sec.*

1871 TANNER, JOHN, M.D., F.L.S., Physician for Diseases of Women, to the Farringdon General Dispensary; 19, Queen Anne street, Cavendish square, W.

1859 TAPSON, ALFRED JOSEPH, M.B. Lond., 36, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64. *Vice-Pres.* 1891.

1863 TAPSON, JOSEPH ALFRED, Surgeon to the Clapham General Dispensary; Holmwood, The Grove, Clapham common, S.W. *Trans.* 1.

1891 TARGETT, JAMES HENRY, M.B., B.S.Lond., F.R.C.S., Guy's Hospital, S.E.

1871 TAYLER, FRANCIS T., B.A. Lond., M.B., Claremont villa, 224, Lewisham high road, S.E.

1869 TAYLOR, JOHN, Earl's Colne, Halstead, Essex.

1871 TAYLOR, JOHN W., M.D., D.Sc., Rothsay House, Prince of Wales terrace, Scarborough. *Hon. Loc. Sec.*

1890* TAYLOR, JOHN WILLIAM, F.R.C.S., 59, Bath street, Birmingham. *Trans.* 1.

1885 TAYLOR, WILLIAM CHARLES EVERLEY, M.R.C.P. Edin., 34, Queen street, Scarborough.

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1890 THOMAS, BENJAMIN WILFRED, L.R.C.P. Lond., Welwyn.

1884 THOMAS, GEORGE H. W., Orchard House, Teignmouth.

1887 THOMAS, WILLIAM EDMUND, L.R.C.P. Ed., Bridgend, Glamorganshire.

1882 THOMAS, HUGH, The Grange, Coventry road, Birmingham.

1867* THOMPSON, JOSEPH, L.R.C.P. Lond., 1, Oxford street, Nottingham. *Trans.* 1. *Hon. Loc. Sec.*

1878 THOMSON, DAVID, M.D., Park square, Luton, Bedfordshire.

1874 THOMSON, WILLIAM SINCLAIR, M.D., C.M., F.R.C.S. Ed , 1, Palace court, Notting hill gate, W.

1879 THORNTON, J. KNOWSLEY, M.B., C.M., Surgeon to the Samaritan Free Hospital for Women and Children, 22, Portman street, Portman square. *Council*, 1882-3. *Hon. Lib.* 1884-5. *Hon. Sec.* 1886. *Vice-Pres.* 1888. *Trans.* 6.

1874 TICEHURST, AUGUSTUS ROWLAND, Winstowe, Charles road, St. Leonard's-on-Sea.

1873 TICEHURST, CHARLES SAGE, Petersfield, Hants.

1866 TILLEY, SAMUEL, 6, Down street, Piccadilly, W.

O.F. TILT, EDWARD JOHN, M.D., Consulting Physician-Accoucheur to the Farringdon General Dispensary; 27, Seymour street, Portman square, W. *Council*, 1867-68. *Vice-Pres.* 1869-70. *Treas.* 1871-2. *Pres.* 1873-4. *Trans.* 7.

1883 TINKER, FREDERICK HOWARD, F.R.C.P. Ed., Talbot House, Hyde, Cheshire.

1887 TINLEY, THOMAS, M.D. Durh., Hildegard House, Whitby.

1879 TIVY, WILLIAM JAMES, F.R.C.S. Ed., 8, Lansdown place, Clifton, Bristol.

1872 TOLOTSCHINOFF, N., M.D., Charkoff, Russia.

1884 TRAVERS, WILLIAM, M.D., 2, Phillimore gardens, W.

1873 TRESTRAIL, HENRY ERNEST, F.R.C.S. Ed., M.R.C P. Ed., 36, Westbourne gardens, Glasgow, W. *Trans.* 1.

1886 TUCKETT, WALTER REGINALD, West Kent General Hospital Maidstone.

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1865* Turner, John Sidney, Stanton House, 81, Anerley road, Upper Norwood.

1891 Turner, Philip Dymock, M.D.Lond., 8, Gloucester terrace, Onslow gardens, S.W.

1881 Tuthill, Phineas Barrett, M.D., Station Hospital, Gibraltar.

1861 Tweed, John James, Junr., F.R.C.S., 14, Upper Brook street, W.

1890 Tyrrell, Walter, L.R.C.P.Lond., 95, Cromwell road, S.W.

1874 Venn, Albert John, M.D., Obstetric Physician to the Metropolitan Free Hospital; 122, Harley street, W.

1873 Verley, Reginald Louis, F.R.C.P. Ed., 28B, Devonshire street, Portland place, W.

1892 Verrall, Thomas Jenner, L.R.C.P.Lond., 97, Montpellier road, Brighton.

1879 Wade, George Herbert, Ivy Lodge, Chislehurst, Kent. *Council*, 1892.

1860 Wales, Thomas Garneys, Downham Market, Norfolk.

1866 Walker, Thomas James, M.D., Surgeon to the General Infirmary, Peterborough; 33, Westgate, Peterborough. *Council*, 1878-80. *Hon. Loc. Sec.*

1889 Wallace, Abraham, M.D. Edin., 64, Harley street, W.

1870 Wallace, Frederick, 96, Cazenove road, Upper Clapton, N. *Council*, 1880-2.

1872* Wallace, John, M.D., Assistant-Physician to the Liverpool Lying-in Hospital; 1, Gambier terrace, Liverpool. *Hon. Loc. Sec. Council*, 1883-5.

1883 Wallace, Richard Unthank, M.B., Cravenhurst, Craven park, Stamford hill, N.

1879* Walter, William, M.A., M.D., Surgeon to St. Mary's Hospital, Manchester; 20, St. John street, Manchester.

1867* Walters, James Hopkins, Surgeon to the Royal Berkshire Hospital; 15, Friar street, Reading, Berks. *Council*, 1884-6. *Trans.* 1. *Hon. Loc. Sec.*

Elected

1873 Walters, John, M.B., Church street, Reigate, Surrey.

1862 Watkins, Charles Stewart, 16, King William street, Strand, W.C.

1884 Watson, Percival Humble, L.R.C.P. Lond., 72, Jesmond road, Newcastle-on-Tyne.

1884 Waugh, Alexander, L.R.C.P. Lond., Midsomer-Norton, Bath.

O.F. Webb, Harry Speakman, New place, Welwyn, Herts. *Council*, 1889-91. *Vice.-Pres.* 1892.

1886 Webber, William W., L.R.C.P. Ed., Crewkerne.

1884 Wedmore, Ernest, M.B. Cantab., Obstetric Physician to the Bristol Royal Infirmary; 11, Richmond Hill, Clifton.

1876 Weir, Archibald, M.D., St. Mungho's, Great Malvern.

1887 Wells, Albert Primrose, M.A., L.R.C.P. & S., L.M., 7, St. George's road, Beckenham.

1876 Wells, Frank, M.D., Hawes street, Brookline, Massachusetts.

O.F. Wells, Sir T. Spencer, Bart., F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Consulting Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859. *Vice-Pres.* 1868-70. *Trans.* 5. *Trustee.*

1886 West, Charles J., L.R.C.P. Lond., Beaminster, Kempshott road, Streatham Common, S.W.

1888 Weston, Joseph Theophilus, L.K.Q.C.P. & L.M., care of Thos. Cook and Son, Ludgate Circus, E.C.

1886 Wharry, Robert, M.D. Aber., 6, Gordon square, W.C.

1890 Wheaton, Samuel W., M.D.Lond., Physician to the Royal Hospital for Children and Women; 52, The Chase, Clapham common, S.W.

1860 Wheeler, Daniel, Chelmsford.

1889 Whitcombe, Charles Henry, F.R.C.S. Edin., Westerham, Kent.

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1890 White, Charles Percival, M.A., M.B., B.C.Cantab., 144, Sloane street, S.W.

1890 White, Edwin Francis, F.R.C.S., 7, Dealtry road, Putney, S.W.

1882 Wholey, Thomas, M.B. Durh., Winchester House, 50, Old Broad street, E.C.

1883 Wicks, William Cairns, M.B., South View House, West parade, Newcastle-on-Tyne.

1887 Wigan, Charles Arthur, M.B.Durh., Portishead, Somerset.

1877 Wigmore, William, 131, Inverness terrace, Hyde park, W.

1883 Wilkinson, Thomas Marshall, L.R.C.P.Ed., 33, Avenue road, Grantham.

1879 Willans, William Blundell, F.R.C.P. Ed., Much Hadham, Herts.

1889 Williams, Arthur Henry, M.A., M.B., B.C. Cantab., 79, London road, St. Leonard's-on-Sea.

1887 Williams, Charles Robert, M.B., C.M. Ed., 15, Ivanhoe terrace, Ashby-de-la-Zouch.

1872 Williams, John, M.D., F.R.C.P., Physician-Accoucheur to H.R.H. Princess Beatrice, Princess Henry of Battenberg; Professor of Midwifery in University College, London, and Obstetric Physician to University College Hospital; 63, Brook street, Grosvenor square, W. *Council*, 1875-76-92. *Hon. Sec.* 1877-9. *Vice-Pres.* 1880-2. *Board Exam. Midwives*, 1881-2; *Chairman*, 1884-6. *Pres.* 1887-8. *Trans.* 12.

1890 Williams, Reginald Muzio, M.D.Lond., 95, St. Mark's road, N. Kensington, W.

1881 Willis, Julian, M.R.C.P. Ed., 64, Sutherland avenue, Maida vale, W.

1860 Wilson, Robert James, F.R.C.P. Ed., 7, Warrior square, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec. Vice-Pres.* 1878-80.

1892 Wilson, Thomas, M.D., B.S.Lond., 4, Waterloo road S., Wolverhampton.

Elected

1891 WINDLE, BERTRAM C. A., M.A., M.D., B.Ch.Dub., Queen's College, Birmingham.

1886 WINTERBOTTOM, ARTHUR THOMAS, L.R.C.P. Ed., Lark hill, Swinton, Manchester.

1877 WINTLE, HENRY, M.B., Kingsdown, Church road, Forest hill, S.E.

1887 WITHERS, ROBERT, Lawrence, Otago, New Zealand.

1880 WOODWARD, G. P. M., M.D., 157, Liverpool street, Sydney, New South Wales.

1890 WORNUM, GEORGE PORTER, 6, College terrace, Belsize park, N.W.

O.F. WORSHIP, J. LUCAS, Manor House, Riverhead, Sevenoaks, Kent. *Council*, 1875-77. *Vice-Pres.* 1883-5. *Trans.* 3.

1881 WORTHINGTON, GEORGE FINCH JENNINGS, M.K.Q.C.P., Highden, Sidcup.

1876 WORTS, EDWIN, 6, Trinity street, Colchester.

1887 WRIGHT, CHARLES JAMES, Surgeon to the Hospital for Women and Children, Leeds; Professor of Midwifery to the Yorkshire College; Lynton Villa, Virginia road, Leeds.

1888* WYATT-SMITH, FRANK, M.B., B.C.Cantab., British Hospital, Buenos Ayres.

1889 WYNTER, ANDREW ELLIS, L.R.C.P. Lond., 30, Upper Berkeley street, Portman square, W.

1871 YARROW, GEORGE EUGENE, M.D., Oakley House, 317, City road, E.C. *Council*, 1881-3.

1882* YOUNG, CHARLES GROVE, M.D., New Amsterdam, Berbice, British Guiana.

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The Society is not as a body responsible for the facts and opinions which are advanced in the following papers and communications read, nor for those contained in the abstracts of the discussions which have occurred at the meetings during the Session.

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OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1891.

JANUARY 7TH, 1891.

ALFRED L. GALABIN, M.D., President, in the Chair.

Present—40 Fellows and 2 Visitors.

Books were presented by the Executors of the late Dr. Matthews Duncan, Dr. Graily Hewitt, Dr. Minot, the Royal Medical and Chirurgical Society, and the Edinburgh Obstetrical Society.

Skene Keith, M.B., C.M.Edin., was admitted a Fellow of the Society.

Thomas S. Allan, L.R.C.P.&S.Ed. (Tonbridge); Arthur Norman Boycott, L.R.C.P.Lond. (Purley); John Dysart McCaw, F.R.C.S. (East Finchley); Hugh Jones Roberts, M.R.C.S. (Penygroes); and Frederick Sloman, M.R.C.S. (Brighton), were declared admitted.

The following gentlemen were elected Fellows of the Society:—Ernest Dawson, L.R.C.P.Lond.; W. E. Picton Phillips, M.R.C.S.; and Frederick William Saunders, M.B., B.C.Cantab.

The following gentlemen were proposed for election :— Frederick Wells Beville, L.R.C.P.Lond. (East Molesey) ; and Charles Mortlock, L.R.C.P.Lond.

UTERUS AND APPENDAGES FROM A PATIENT DYING DURING MENSTRUATION FROM PURPURA HÆMORRHAGICA (WERLHOF).

By John Phillips, M.D.

The patient, aged 36, was married, with one child born two years ago. The labour and puerperium had been quite normal. There was no family history of rheumatism or hæmophilia. She had been quite well and at work up to eight weeks before her death ; her menstrual period then was very profuse ; and accompanied by the passage of much clot, but without pain. This flow lasted for eight days, the usual monthly illness being from four to five days.

Fourteen days later, purpuric patches appeared on her arms and legs and menstruation commenced again, being even more profuse than before. The hæmorrhage from the gums and nose was very considerable, resisting all treatment and being the ultimate cause of death. There was no hæmatemesis or melæna. She died from exhaustion during the third morbid menstrual period. The temperature varied, throughout the illness, between 101° Fahr. at night and 99° Fahr. in the morning, the pulse sometimes reaching 140 beats per minute. There was no hæmaturia or albuminuria at any time. At the necropsy a large intrauterine blood-clot was found attached to the fundus and protruding through the external os. In the right ovary, at the probable site of the corpus luteum, was a hæmorrhage the size of a marble.

Dr. Horrocks mentioned a case of hæmorrhagic diathesis in which menstruation had, at its commencement, well nigh proved

fatal. The bleeding was only arrested by plugging the vagina. The girl had had to be plugged ever since at each menstrual period.

UTERUS AND APPENDAGES AFFECTED WITH TUBERCLE.

By W. R. Dakin, M.D., B.S.

The specimen was removed from the body of a patient, aged 13, who had died of abdominal tubercle, every organ in this cavity being affected. She had suffered in the first instance from perityphlitis which improved and then recurred. On its second appearance an incision was made in the right iliac region and caseating glands were found. She subsequently died as above mentioned.

The uterine body was distended with caseating material, the cervix being perfectly free. Both tubes contained caseous products, and were imbedded in a mass of lymph together with the ovaries, their anatomical relations being much disturbed. The infiltration and caseation were most marked at the fimbriated ends of the tubes, which were converted into solid knobs. The ovaries showed to the naked eye no sign of tubercle.

Dr. Cullingworth enquired whether tubercles were present on the general surface of the peritoneum.

Dr. Heywood Smith thought it would be interesting as regards to what Dr. Dakin had said of the rarity of such cases to mention that last year he removed the uterine appendages in a case where there was tubercular deposit in one oviduct.

UTERINE APPENDAGES SHOWING CYSTIC GROWTHS AND TUBAL DILATATION.

By T. C. Hayes, M.D.

Patient was admitted into Royal Free Hospital under Dr. Hayes on October 27th, 1890. Her age was 34. Married nine years, never pregnant, menstruation never regular, at intervals of three to six weeks—latterly scanty. A year after marriage, large ulcers formed on extensor surface of each leg—through one of these, spiculæ of bone cast off and aperture never quite healed. In January last, attended Surgeon, Mr. Berry, for vulvar sore and yellow vaginal discharge. At beginning of this month she was suddenly seized with severe pain in both iliac regions, hypogastrium, back, and distressing bearing-down. These symptoms did not abate, and she was transferred and admitted immediately under Dr. Hayes, who found, October 28th, tense and firm swelling occupying left broad ligament, and reaching down almost to level of os uteri. Hand on left iliac region felt the swelling rising out of pelvis and towards median line—tender and almost immoveable. Uterus apparently felt above symphysis pubis to the left side, nearly fixed. On October 31st, menstruation had set in and pain was greatly complained of in right iliac region. On November 8th, largish swelling was first detected on right side above Poupart's ligament and in right cul-de-sac of vagina. The swelling on left side continued much the same. Poultices were applied to abdomen, and abdominal pain, severe at times, became lessened. On November 17th it was noticed that the growth on the right side felt elastic, and possessed but little mobility—the bulging and denseness of left cul-de-sac much the same. Patient's pain and tenderness slowly subsided. The swelling and resistance on left side gradually disappeared,

the right-sided swelling continued to keep much the same size but became much more moveable. The temperature was only elevated during third week in November and reached 101° for seven to eight days. On December 23rd anæsthetic given. The swelling on right side was now found pretty moveable, and reached into posterior cul-de-sac—it felt smooth and elastic but not at all as if fluid ; low down in left broad ligament a small rounded body with a sausage-like swelling ; uterus was separated from both of these by sound and was directly in front of former. Operation was now recommended, and was carried out December 30th. The right swelling was enveloped in recent inflammatory covering, which being peeled off, the tumour was raised to abdominal opening by left hand and when seized by fingers of right hand ruptured, and some of the muco-pus, which tensely distended it, escaped into abdominal cavity, ligature (double) applied close to uterus. On left side many adhesions also soft and recent were broken through, and the sac, much smaller than that of right, ruptured at abdominal wound with escape of a softish clot of blood, no purulent matter was seen, ligature as on right side. Abdominal cavity freely washed out with hot boracic lotion : no drainage-tube inserted. Double cyanide dressing and all antiseptic care. Patient is making a most satisfactory recovery—stitches were removed on fifth day.

Dr. Hayes said some question must arise as to the nature of the specimen. Tubal dilatation with inflammation was clear, but were the sacs produced by the fimbriated extremities of the Fallopian tubes—pyo-salpinx, hæmato-salpinx—or by ovarian cystomata opening into dilated Fallopian tubes ?

Dr. Horrocks asked if the contents of the distended tubes had been examined carefully when first obtained. He considered that chemical and microscopical observations should be made in these cases. In a recent case, operated on by Dr. Galabin, he had found few pus-cells, but several larger cells that might have been and probably were altered ciliated epithelium.

Dr. Cullingworth thought that it was impossible, from a cursory examination, to say with certainty whether the cyst was tubo-ovarian or not, and hoped Dr. Hayes would approve of a small committee being appointed to examine and report upon the specimen. He (Dr. Cullingworth) happened to have had no fewer than five cases of suppurating tubo-ovarian cyst removed by abdominal section during the past fifteen months, and he strongly suspected that Dr. Hayes's would turn out to be such a case.

Mr. Alban Doran stated that the distinction of a tubo-ovarian cyst from a dilated tube was often impossible during operation and was not very easy afterwards when the walls of the cyst were so degenerated that tubal and ovarian tissue could not be distinguished by the aid of the microscope. He had described a good example of disease of both Fallopian tubes and ovaries in the 'Transactions' of the Pathological Society, vol. xxxix, 1888, p. 200.

The Specimen was referred to a committee consisting of Drs. Cullingworth, and Hayes, and Mr. Alban Doran.

TWO SESSILE FIBROID POLYPI.

By T. C. Hayes, M.D.

ON REMOVAL OF THE UTERINE APPENDAGES IN CASES OF FUNCTIONAL NEUROSIS.

By W. S. Playfair, M.D., LL.D.

(Received April 21st, 1890.)

(*Abstract.*)

The author details several cases that have come under his observation :

1. A case of neurosis treated by removal of the appendages, without benefit, subsequently cured by systematic treatment.

2. A similar case in which the operation was recommended, and about to be performed, when the patient refused her consent, likewise cured by systematic treatment.

3. A case of neurosis, in which there was distinct evidence of structural disease of the appendages. In this instance the neurotic symptoms were first dealt with, in the hope that the patient would be sufficiently bettered to avoid the necessity of operation.

4. The subject of hystero-epilepsy and mania treated by removal of the uterine appendages is considered, and an illustrative case given.

The general conclusions arrived at are—

1. That the removal of the appendages is not a legitimate procedure in cases of purely functional neurosis.

2. That when marked structural disease of the appendages coexists with severe neurotic conditions, the latter should be treated in the first instance, in the hope that operation may be avoided.

3. That in hystero-epilepsy and hystero-mania the results of operation have been so unsatisfactory that it is a procedure of very doubtful expediency, and not to be recommended.

Of late years I have had occasion to see and to treat a considerable number of cases of functional neurosis, including many where the patient was completely broken down and bed-ridden, in which all imaginable kinds of treatment had previously been tried in vain. In a large proportion of these cases there had existed, at one time or another, some sort of uterine or ovarian symptoms, and, it is needless to say, that in running the gauntlet of remedies, those directed to these symptoms, such as pessaries, cauterisation, and the like, had held a prominent place. It is not my intention in these notes to treat of the general management of these cases, which I have often done elsewhere. It will suffice for my purpose if I express the conviction which I strongly entertain that there are few classes of disease more certainly amenable to treatment than functional neurosis, or in which more brilliant and satisfactory results can be obtained, provided only they are attacked in a systematic, intelligent, and common-sense way, with a due recognition of the essential nature and cause of the illness, and that that way is certainly not an endless system of drugging.

Amongst other treatment occasionally adopted in such cases nowadays, is the removal of the uterine appendages, and it is with regard to this only that I wish to make some observations on the present occasion.

Within the past few years I have come across several cases in which the uterine appendages have actually been removed in the hope that the existing neurotic condition might be cured. Yet no good result whatever has followed, and the patients have at length completely recovered under systematic treatment. That the same cure might have been effected without this mutilation is illustrated by several analagous cases under my observation, where the operation has been recommended as a remedial agent, but not performed. Yet in these cases also complete cure has subsequently been effected. Quite recently I have had under my care, at the same time, and in the same medical home, two cases coming under each of these

categories, which have tempted me to put together these notes, in order to formulate, if I can, some rules for our guidance under such conditions, and these I shall briefly relate.

Before doing so let me say emphatically that I do not write this communication by way of opposition to the removal of the uterine appendages as an operation in suitable cases of structural disease, such as pyosalpinx, hydrosalpinx, hæmorrhagic fibroid, and the like. There are men, no doubt, who resolutely oppose this operation in all cases whatsoever. I am not one of them, for I am quite satisfied that in certain forms of pelvic disease of long standing, removal of the uterine appendages is not only a legitimate procedure, but that it is the only possible way of restoring the health of the patient. The evidence on this point seems to me overwhelming. I think myself that a persistent refusal to recognise the value of this operation in suitable cases is a grave error. *Per contra,* I am afraid it must be admitted that the operation has been by many resorted to with a light-heartedness and facility which is most reprehensible, and which has given good ground for the odium which is attached to it in the minds of some of its opponents. Personally I look upon this operation as a confession of failure to cure, a dire necessity which is never to be resorted to until every possible means of cure by simpler methods has been patiently and persistently tried and failed, but which, under such circumstances, may be not only legitimate but essential. This is my personal confession of faith with regard to this much debated question, and I take it that in this, as in most other things, the *via media* is likely to be the safest path to follow. It is not my purpose, however, to raise the general question, important though it be. It is as a remedial measure in purely functional neurosis only that I wish to discuss it.

Case 1.—In December, 1889, I was asked to see a single lady, aged 37, whose antecedent history, so far as

the removal of the uterine appendages is concerned, I give in the words of one of the many medical men who had attended her, himself a consultant of great experience. He writes, "I was first asked to see Miss— four or five years ago, and was told that she suffered from severe dysmenorrhœa for which everything in the way of medicines had been tried. Rapid dilatation of the cervix was practised. I do not remember if this gave much relief; if so it was certainly not lasting. Dr. A. suggested removal of the ovaries, to which I objected on the score that no evidence of disease of these organs could be made out. By and by Dr. A. took her to see Dr. B. who advised operation, and with my help and concurrence this was done. The ovaries seemed somewhat enlarged, but were not cystic. The operation was performed in the summer of 1888. Since then there have been frequent attacks of pain, which were thought to be peritonitic, but of this there is no special evidence. I saw her some three or four months ago, and from what I then saw, and am now told by Dr. A. and her father, her mental condition is getting worse, and the question has arisen whether seclusion with massage will do her good." Her family medical attendant, Dr. A., writing of her condition a year after the operation, says: "Miss— is practically bed-ridden and helpless, suffering almost constant pains about the ovarian regions. She has only a day or two at a time when she can even stand or move slowly." The account I was myself able to elicit of this lady's illness was that it dated from a severe mental shock five years ago. This, I may say in passing, is an excessively common antecedent in bad cases of nervous break-down. It is seldom, indeed, that something of this sort cannot be traced, such as death of a relative, disappointment in love affairs, overstrain in nursing, or the like. The prostration and collapse were excessive. For the last six months the patient had never been out of bed. Complete anorexia, sleeplessness, and all the usual symptoms of the most aggravated neurosis were present. Instead of being emaciated, how-

ever, the patient was large, fat, and flabby, a condition which is occasionally met with in severe neurasthenia, associated with almost complete loss of appetite. It is an aggravating complication, since experience has shown that it is useless to commence the endeavour to get such cases into condition by rest, massage, and over-feeding, until this superfluous and useless fat is removed by keeping the patient on a starvation diet of a pint of skim milk daily, until she has lost some 18 or 20 lbs. in weight. It is not my object to deal at present with the cure of neurotic conditions, which I have often done elsewhere, and I need only say that the result was all that could possibly be desired. Very soon this helpless and hopeless invalid was transformed into a healthy and intelligent woman. No evidence of illness remains, and she is now travelling about the Continent, capable of any amount of fatigue, and I continue to receive the most gratifying reports of her.

Now it is impossible for me to say, nor do I say, that the antecedent operation should not have been performed. It was done by men of the highest professional position, after repeated consultations, and anxious consideration. It was certainly done with the best intentions, and, therefore, it was a legitimate expedient, for all ordinary methods of treatment had been patiently tried, and in vain. What is perfectly obvious, however, is that so far as success is concerned it was an absolute failure. The patient was in no way the better for it, except that since menstruation ceased altogether she had no longer dysmenorrhœa, which, however, she had had ever since she began to menstruate, and which would not have troubled her had her general health been good.

So far as her neurotic state was concerned, she steadily deteriorated after the operation, and got into such a condition that her life was a burden to her. It is impossible to resist the thought that if systematic treatment had been undertaken before instead of after, she would have equally recovered without the mutilating operation

she underwent. The case seems to me a strong argument in favour of my contention that in doubtfully neurotic conditions such an operation as the removal of the appendages is not legitimate until systematic treatment has been thoroughly tried and failed, probably not even then until there is distinct evidence of structural disease.

The next case I shall mention is a strong comment on this axiom, for in this instance the patient narrowly escaped having the appendages removed for her neurotic condition, and yet completely recovered.

Case 2.—Mrs.—, aged 48, is the mother of four children, the youngest of them ten years of age. She has been more or less ill ever since the birth of her last child. She has had vague, pelvic and general pains, but they cannot be localised. She is, however, a complete invalid, there is almost total loss of appetite, and great emaciation. There is a general sense of weakness, and she feels when standing as if she would fall. There is a special complaint of inability to use the right leg, but the muscular movements are normal. She says she is unable to turn herself in bed. Menstruation is regular but scanty. Nothing wrong can be made out on vaginal examination, except slight tenderness on pressure in the region of the right ovary, but it cannot be made out to be enlarged. This patient has the usual history of all such neurotic cases, that is to say she has seen numerous doctors, and she has exhausted the virtues of drugs and health resorts. The interesting point about her is that some years since resection of the uterine appendages had been proposed, and, the patient's consent having been obtained, preparations were made for the operation. The night previous to the date fixed, however, the patient's courage failed, and she suddenly made what we call in Scotland "a moonlight flitting." Subsequently, she naturally progressed from bad to worse. Last year I subjected her to systematic treatment with the usual satisfactory results,

and I recently heard from her that she remained well, was free from pain, and considered herself cured.

It can hardly be questioned that had this patient not taken the law into her own hands, and thus escaped operation, her history would have exactly paralleled case No. 1, for the recovery and the complete absence of pain accompanying it is pretty conclusive proof that her uterine appendages had nothing to do with her illness.

I know of one case in which the co-existence of structural disease of the appendages, with marked neurotic conditions, was recognised from the first. In this I made an attempt, and I think rightly, to cure the latter, in the hope that the former might be borne without operation, but with a full prevision of the fact that operation might ultimately become necessary.

Case 3.—In September, 1889, happening to be at Aix-les-Bains, I was asked by my friend Dr. Brachet to see an American lady, who was almost entirely bed-ridden. She was thirty-six years of age, and her illness dated from the birth of her second child, eleven years previously. Her symptoms were clearly in the main neurotic, and for many years she had only moved from the bed to the sofa, or to a bath chair. She complained a good deal of pelvic pain, and on examination I could make out a large and very tender ovary, and an indefinite swelling in the left broad ligament, which might possibly be a diseased tube. I gave it as my opinion that her neurotic symptoms were independent of this, and were probably curable, and it seemed possible that if she were restored to good health she might be spared any operative procedure. She came to London for treatment in November, 1889, and was so much improved that she was able to walk and go about with a fair amount of comfort, although there was no very material change in the local symptoms. On the 2nd of March she wrote to me from Nice, "I am full of energy, and am no longer a nuisance to everybody. I am afraid my left ovary complaint, what-

ever it is, is not much better, but I am patient because I am, on the whole, so much better since your treatment."

Now it may possibly be contended that in this case the proper procedure would have been to remove at once the appendages, which I am afraid are diseased. I think it more than likely that, if this had been done, the neurotic disease, which completely overshadowed the local mischief, would have remained unaltered. As it is, by treating this first, I at least gave the patient the chance of getting sufficiently well to be spared an operation, and her state of health is so much improved that she is in a far better condition to bear a serious operation, should this be necessary, which I think is probable. In any similar case in which marked neurotic symptoms co-exist with structural mischief, I believe a similar course would be the proper one to adopt.

Since the above was written, I have had under treatment a very similar case, which strongly points to the correctness of the conclusion I have arrived at with regard to this type of illness.

Case 4.—In November, 1890, I was consulted by an army medical officer about his wife, aged 25, who for more than a year had been a completely bed-ridden invalid, her break-down having followed on much mental anxiety, and fatigue on nursing her husband through a severe illness. She was greatly emaciated, and could practically take no food. Her most prominent symptoms were frequent attacks, often repeated several times daily, of a sort of pseudo-angina, with pain down the left arm, followed by convulsive spasms, and complete unconsciousness. No treatment had been of the slightest use, and she was rapidly going from bad to worse. There was no symptom of structural heart disease, and I concluded that these attacks were purely neurotic.

Very severe pain in her right ovarian region was complained of, and on examination I found the right ovary

was the size of a Tangerine orange, and acutely tender to the touch.

I advised systematic treatment, but told her husband that the condition of the ovary was such that I fully expected that its removal would be necessary as soon as her general health was sufficiently improved. Within a week of her isolation the pseudo-anginous attacks ceased, and have never recurred. She is now perfectly strong and well, has gained three stones in weight, and says she never felt so well in her life. The strange thing is that, *pari passu* with her improving health, the pain in the ovary lessened, the only local treatment used being hot douching, and has entirely disappeared. The most careful examination fails to detect any sensitiveness or enlargement, and the ovary cannot be made out at all. Of course it is too soon to say that the improvement is permanent, but, as yet, there is certainly not the slightest sign of the recurrence of the local trouble, which was formerly so marked that I entertained no doubt that operation would be necessary.*

There is one class of neurotic disease in which the appendages have been most often removed in the hope of cure, namely cases of hystero-epilepsy, or hysterical mania, specially aggravated at the menstrual epoch, and, therefore, presumably depending in some way on that function. That the artificial production of the menopause should have a curative effect is a reasonable enough theory, and it is not surprising that the operation should have been often performed in such cases. The records, however, are not satisfactory. I have made no attempt to collect a table of all the published cases of this kind, but the most cursory glance at current medical literature shows that a large percentage of cases were complete failures, so far as the desired object was concerned. Thus in the 'American Journal of Obstetrics' for 1887 and 1888, ten cases of operation for hystero-epilepsy and hystero-mania

* I saw this lady in May, 1891, more than a year since the above was written, and she remains in perfect health.

are reported, of which five are stated to have been restored to health, and five were failures, one proving fatal. In the 'British Medical Journal' for 1888 Mr. Lawson Tait reports a case, and Dr. Imlach another, in the latter of which the fits were not cured. It is to be remarked that in both of these there was extensive structural disease, which puts them out of the category of cases in which the operation was performed for pure neurosis. In the former of these there were dense pelvic adhesions binding down and occluding the tubes to such an extent that a previous operator had failed in removing them; in the latter there was a double hydrosalpinx.

It certainly cannot be said that if the results are generally anything like those of these recently recorded cases, in which 50 per cent. were failures, one would feel encouraged in recommending or adopting this procedure. I have myself only once removed the appendages for hystero-epilepsy, and that in as promising a case as could possibly be imagined; moreover the operation was performed not only at the special request of the husband, who had made a most intelligent study of the subject as the subjoined report will show, but also on the recommendation of so distinguished a neurologist as my colleague Professor Ferrier. I give the history of the case in the words of a report written by the husband when the patient was first brought to me at King's College Hospital.

Case 5.—Mrs. D— is thirty-five years of age. She had a miscarriage about a year and half after marriage. It was then that the first signs were shown, slight unconsciousness for a minute or less. The doctor ignored these, and they became more marked and frequent for several years. Ten years ago last June she had the first real fit. At first they occurred about once in three months, with slight ones between, gradually becoming more frequent. She had seen seven or eight physicians since 1874, one of whom proposed an operation, since carried out, but not then (this was cliteridectomy). Brain symptoms have

been slightly manifested for some years, but these have only been well marked recently. The slighter symptoms were irritability and unnatural perverseness, great depression alternating with excessive liveliness.

"Just two years ago she had a distinct attack of slight insanity. After some fits she was unconscious for about twelve hours, confused and wandering. Last year she left off doctors for a time, without any apparent disadvantage. In October last, after several bad fits, she lay entirely unconscious for twenty-four hours, and subsequently had an acute attack of mania. This has quite passed off, but she still has the fits, and occasional acute hysterical attacks, with great frequency. Our idea is that as these attacks are almost always at the menstrual periods, especially lately, and as these are always much too profuse, the fits must be greatly dependent on these times. We often hear of persons subject to fits losing them at the change of life. Mrs. D— might, but being so young, and the case so bad, the probability is that the brain will be hopelessly affected long before that time arrives. We think, therefore, that if the operation to anticipate this were performed, it might be reasonably expected to have the same effect, as if the change of life were to occur in its natural course. All kinds of treatment except this have been tried, and all kinds of medicine given for years past. This is now the last resort. I believe it is used for such cases, and I hope it will commend itself to your judgment."

This excellent report of the case, and the advice of my colleague Dr. Ferrier, determined me to carry out the wishes of the husband, and I removed the ovaries and tubes on the 24th of June, 1887. They were apparently healthy, and the patient made an excellent recovery. On August 2nd of the same year, her husband writes: "She has had no less than five fits, bad ones, within twelve hours. This is as bad a turn, or worse, than she has ever had, and I fear the case is hopeless."

On March 26th of this year her medical attendant, Dr. Fountaine, of Camden Road, who originally sent the case

to me, writes in answer to my inquiries: "Mr. D— informs me that the attacks are quite as frequent as formerly, one daily for two or three days, then an interval of freedom for two or three weeks. The head symptoms are not so severe as before the operation."

It will, I think, be admitted that this was as promising a case for this procedure as could possibly be met with. It is a type of hystero-neurosis rarely seen in this country, but which the writings of Charcot show to be much more common in France. I am far from satisfied that it was beyond hope of cure by systematic treatment.

In an introduction to a discussion "On the systematic treatment of aggravated hysteria and allied forms of neurasthenic disease," which I opened in the medical section of the meeting of the British Medical Association at Worcester in 1882, I related a case curiously like it. In that instance epileptiform fits had lasted twelve years, and were far more numerous and frequent. That patient never had an attack of mania, but she had even more prolonged fits of coma or trance, and many strange neurotic phenomena which Mrs. D— never showed, such as contractures, various forms of paralysis, and once hysterical amaurosis lasting for a year. Yet this case was completely cured, and has remained practically well for eight years. In Mrs. D—'s case I was influenced partly by the distinct association of the attacks with menstruation, which justified a strong hope of success, and partly by the impossibility of carrying out systematic treatment properly in hospital practice. The result, however, was altogether unsatisfactory, and with an experience such as this I shall certainly not again sanction or resort to an experimental treatment of this kind.

The outcome of my experience of the removal of the uterine appendages for functional neurosis is, therefore, decidedly against its adoption. I believe it should be laid down as a rule that it is not a legitimate procedure, and should not be resorted to, in any case of purely functional nervous disease, in the hope of cure. I have never

seen any reason to think that cases of nervous break-down are distinctly connected with the menstrual function, and so grave an operation does not seem to me justifiable as a mere experiment.

If there be distinct evidence of structural disease, as in Cases 3 and 4, the matter stands on a different footing. Even then, however, I believe that the proper course is to try and cure the co-existent neurotic symptoms in the first instance, in the hope that the health of the patient may be sufficiently improved to render operation unnecessary. Should this turn out not to be the case the patient will, at least, be in a better state to support such operative interference as may be found essential. In hystero-epilepsy, and allied conditions, although a certain number of cases after operation have been reported, there have been at least as many failures, so that, even in such cases, the removal of the appendages is an operation of very doubtful expediency, which I should not myself again practice.

Sir SPENCER WELLS said that he had so recently expressed at the College of Surgeons his condemnation of the excessive frequency with which the ovaries and Fallopian tubes had been removed for some years past, that he should not have joined in the discussion to-night if he had not been anxious to bring before the Society a valuable pamphlet he had just received from Dr. Ross of Toronto, Surgeon to the Hospital for Women there, a man of large experience and high character, who had recently attended for some months at the Birmingham Hospital for Women. The title of his pamphlet is 'The Failure of the Removal of the Tubes and Ovaries to Relieve Symptoms.' He says: "To operate on organs not diseased for the relief of indefinable pain-symptoms, hysterical symptoms, cataleptic symptoms, epileptic symptoms, is to my mind unjustifiable. A craze seems to have taken hold of the profession, the axiom seems to have become—'If a woman has indefinite pains and local symptoms take out her ovaries.'" This axiom requires a radical change. Dr. Ross goes on to say, "I have seen these unjustifiable operations done both in Europe and America . . . Many cases in which ovaries and tubes are removed to relieve certain nervous symptoms remain unrelieved . . . Many cases I hear of as cures are not cures . . . From our many failures to remove

nervous diseases, as hysteria and epilepsy, by castration, we can see that the ovaries play but a part in their causation, and I believe that we might as well hope for relief of these diseases by enucleation of both eyes as by removal of both ovaries, or both tubes, or both tubes and ovaries, or even tubes, ovaries and uterus." To show the folly of tabulating recoveries after removal of the ovaries as cures of the condition which was supposed to justify the operation, Dr. Ross relates a case where he removed the ovaries in 1886. In 1888 he was able to report that his patient had been "in splendid health ever since operation," but in 1890 had to say "her mental condition is not what it was before. She seems lazy, indolent, and fat, and is not the bright little woman she was before the operation, even when she had her aches and pains. Sexual intercourse is only indulged in as a marital duty. It gives neither pain nor pleasure." Then Dr. Ross proceeds: "Many deaths from these operations have been recorded. Many failures to relieve symptoms have not been recorded. . . . A girl's prospect of marriage, maternity, and a happy life are blasted for ever by such a procedure." He then refers to a case where a lady of my acquaintance was operated on at Birmingham, and her case was brought before the Gynæcological Society in December, 1888, very soon after the operation, as a "practical cure." I saw that lady to-day. She has never been well since the operation, but very much worse than before, and her case instead of being a cure is a deplorable and disastrous failure. I have seen other cases almost as discreditable, and I fully concur in all that Dr. Playfair and Dr. Ross have said against unnecessary and unjustifiable mutilation for transitory disease.

Dr. Priestley said that the question raised by Dr. Playfair had been thoroughly debated at the International Medical Congress held in Copenhagen six years ago. The debate was initiated by the distinguished Prof. Hegar, and although he would not use the language of a celebrated statesman, and say that the "whole civilised world" was against the removal of the ovaries and internal appendages for any reason when they were not diseased, yet he might say that the preponderance of the best opinions was distinctly adverse. So far as his own experience went it was not favourable to such a proceeding. In the first place it was not free from danger, and some of the best operators, such as Sir Spencer Wells, had expressed the opinion that the operation was by no means so easy as might be imagined, not so easy in fact as an operation for ovarian tumour. Then so far as his experience went, the operation did not cure the patient, proving, if such proof were necessary, that severe ovarian pain without disease is but the expression of a general neurosis, the pain concentrating itself, as it were, on the reproductive organs, because during the period of their greatest activity they are the

most exacting. The proposal to remove the uterine appendages really arises from mistaken diagnosis, and was comparable to treating as the real ailments the pain in the knee associated with hip-joint disease in children, or the pain in the calf of the leg so often experienced by women who are the subjects of phlegmasia dolens. Some one has tritely remarked that those who treat the diseases of women should recollect the patient has some organs outside the pelvis, and it is well to take a broader view of her sources of suffering. It was well known that severe and prolonged cases of neurosis with ovarian trouble often get well spontaneously when all medical treatment has been apparently ineffective. It was further by no means an uncommon occurrence that some change in the surroundings of a patient so suffering, such for instance as an engagement to marry, which gave a fresh impulse to vitality, speedily dissipated the ailment altogether, and restore the patient to health. Dr. Priestley did not profess to have an extensive knowledge of the practice of surgery in these, but he did know that neuralgia of the testicle was not uncommon, and that it produced so much suffering and mental depression as to lead the subjects of it to say they were almost driven to commit suicide. Yet he had never heard that castration was largely resorted to in this class of cases, and if not, why in women? It was very likely that men would not submit to this mutilation if it were proposed, but women being more emotional not only assented to but possibly urged an operation as offering a possible relief to prevent suffering, and for the time overlooking the future results. These were just the patients to turn round on the operator afterwards and blame him for yielding to their wishes. On one of the last occasions when he had heard the voice in this Society of one whose opinions were always listened to with deference, he meant the late Dr. Matthews Duncan, Dr. Duncan had warned them that Leopold's proposal to allow a patient to decide whether craniotomy or Cæsarean section should be performed or not, was introducing a new and dangerous morality into obstetric practice, and that although a patient might decline advice tendered to her, it would be most unwise to give her the option of saying what operation should be selected, or if an operation should be performed at all. Dr. Priestley really thought there was enough legitimate work for the gynæcologist without doing unnecessary operations, which might do nothing more than swell the list of another 1000 abdominal sections. It was perfectly legitimate to remove the uterine appendages when they were hopelessly diseased, but purely neurotic cases were best placed under the medical and moral treatment recommended by Dr. Weir Mitchell, and so successfully carried out by Dr. Playfair. It was well to remember in connection with these cases the saying of Dr. Goodell of Philadelphia: "Groin-aches and sore ovaries

are far more commonly symptoms of nerve exhaustion than of disease of the appendages." The usual and easy formula as an excuse for operating was that everything had been tried and failed, but he would lay it down as a rule that the appendages should only be removed when there was distinct local disease ascertainable by examination, and he would put still some further limit to this, for it was well known that both ovaries and tubes might be considerably enlarged, and yet return to their natural size without operation. In those formidable diseases, mania and epilepsy, he, in the present state of our knowledge, did not venture to give an opinion. Grave maladies might call for grave measures of treatment, and a decision on these points must be postponed until we were better informed, and were in a position to judge of the results.

Dr. Gervis said he apprehended there were few present but would agree with the spirit of the first and third conclusions formulated by Dr. Playfair. As to the second, more difference of opinion would exist, according to the interpretation of the word "marked." If "marked" signified organically and permanently affected, then he failed to see any object in hesitating at operation unless the local conditions gave rise to no symptoms of importance. But if "marked" meant only a condition which came within the limits of what was curable, then certainly "systematic treatment" should be tried before any idea of operation was entertained. Dr. Gervis added that he believed "systematic treatment" combined with massage was often of great value not only in curing the general neurotic condition but the local malady.

Dr. Horrocks said that it was necessary to remember that a functional neurosis was a complaint without an organic lesion to account for the symptoms. It was always difficult to prove a universal negative. Hence where a woman complained of pain in the ovarian region it was not easy to say that she had no disease in the pelvis to account for such pain. If no disease could be found and yet the patient complained persistently of pain and distress which remained unrelieved by systematic treatment, it became a question whether it was not then justifiable to open the abdomen and examine the pelvic viscera with the object of discovering if possible the source of the pain and removing it; in such a case if the ovaries and tubes were found to be healthy ought they not to be dropped back into the pelvis and left alone? He mentioned a case which came under his care at Guy's Hospital twelve months ago. He examined her and could discover no disease in her pelvis. He sent her home and recommended systematic treatment. This was carried out without any benefit, and she had now returned to the hospital, earnestly desiring that something operative might be undertaken to relieve her of her pain; would it be justifiable to remove this woman's appendages?

He had seen a large number of cases of nerve disease, epilepsy, hystero-epilepsy, and the like, and he thought that in those cases which were brought on by nerve-shock, it was possible to cure by mental impressions. Hence these cases were sometimes cured by the so-called faith-healers. He did not think removal of the appendages justified in functional neurosis, and he did not think the appendages when healthy ought to be removed for any disease such as epilepsy where the relation between the disease and the organs was of a purely hypothetical character. Cases occurred sometimes of a mixed character, that is there was functional neurosis and also pain caused by real disease. In these it would be justifiable to remove the appendages if these were the seat of the disease, and later if the symptoms were only partially relieved systematic treatment could be adopted.

Mr. Alban Doran said that there was a great difference between removal of the appendages for disease and their removal for a neurosis. In the first case the patient might possibly recover without operation, but, at the worst, structures absolutely diseased were removed. The ligatured pedicles would be relatively small sources of irritation as the case was not necessarily neurotic. In removal of the appendages for neurosis, the amputated ovaries were often healthy, being only assumed sources of irritation. The ligatured pedicles remained as definite sources of irritation in these neurotic patients, so intolerant of any abnormal condition. The argument that the stopping of the catamenia, that is to say the induction of a premature menopause, cured the case, was unsound. Let it be granted that in a woman aged 25 each period aggravated the nervous symptoms, no operator had a right to assume that spontaneous recovery or cure by mild therapeutic measures was impossible within the twenty years which must elapse before the normal menopause. Lastly, the natural menopause was often a severe shock to nervous patients, worse than the menstrual periods. If a woman, aged 25, suffered mentally at her periods, she was likely to suffer worse from their premature suppression. This fact probably accounted for the occasional occurrence of insanity after the removal of the appendages for functional neurosis.

Dr. Heywood Smith said that it seemed a pity that all the remarks had been adverse to an operation which in many cases had proved so successful. In his experience many cases had been entirely relieved from intense neurosis of the ovaries. With regard to cases of hystero-mania he would mention a case he had referred to in another place A young lady had been the subject of so-called intermittent melancholia, and had been under the care of an experienced alienist for two years. Dr. H. Smith then removed the uterine appendages, and the patient had been cured. In this cases one ovary showed a condition of incipient cystic degeneration.

Dr. Hayes thought that there was no trustworthy evidence to show that the troublesome neurotic symptoms exhibited by the class of patients referred to in the paper were due to diseases of the tubes or ovaries. These symptoms were found where no pathological change existed in these structures. Most frequently where the ovaries, or tubes, or both were scarcely diseased the patients were free from neurotic symptoms. He thought then operation for the relief of such symptoms should not be urged, even in cases where there was palpable disease. He believed that it almost invariably failed. Where these organs were diseased they should be removed for other reasons; obvious consequential local distress, risk of perimetritis and parametritis, &c. He had reason to suspect that patients sometimes submitted to the operation in order to be relieved of the inconveniencies of menstruation and child-bearing. They were never led to realise what evils might follow.

Dr. Playfair said that he really had no reply to make to the various speakers, since the views he had enunciated in his paper had been very generally accepted as correct. Dr. Heywood Smith had obviously misunderstood him. His paper was not written with the view of opposing operation in suitable cases of structural diseases, which he himself constantly practised, but to show its inefficiency in cases of purely functional nervous break-down. He could only repeat his conviction that these cases had generally nothing to do with the reproductive organs. Dr. Gervis had made a fair point against him. He could not recall the case he alluded to, but he could perfectly understand how it occurred. In all probability it was one in which the neurotic symptoms were not well marked. He was always trying to avoid the imputation of riding a hobby too hard, and nothing was more likely than that he had advised against systematic treatment in a case which was nevertheless well suited for it, from a wish not to recommend it indiscriminately. The case rather strengthened than otherwise his contention that in cases of suspected structural diseases accompanied by neurotic symptoms operation should follow, not precede, the attempt to cure the latter. He begged to thank the Society for the kind manner in which his paper had been received.

ANNUAL MEETING.

February 4th, 1891.

Alfred L. Galabin, M.D., President, in the Chair.

Present—74 Fellows and 11 Visitors.

The President declared the Ballot open for one hour, and appointed Dr. Holman and Dr. M. Handfield-Jones as Scrutineers.

Books were presented by Dr. Benington, Dr. Emmet, Dr. Frommel, and the Westminster Hospital Staff.

John Reynolds, M.D., and Frederick William Saunders, M.B., B.C.Cantab., were admitted Fellows of the Society.

The following gentlemen were elected Fellows:—Frederick Wells Beville, L.R.C.P.Lond. (East Molesey); and Charles Mortlock, L.R.C.P.Lond.

The following gentlemen were proposed for election:—Edwin Alfred Barton, L.R.C.P.Lond.; George John Eady, M.D.Brux.; Arthur Edward Garrett, L.R.C.S. and L.M. Edin. (Rickmansworth); William Rivers Pollock, M.B. Cantab.; John Alexander Shaw-Mackenzie, M.B.Lond., and Philip Dymock Turner, M.D.Lond.

Report of Committee, nominated November 5th, 1890, on Dr. Amand Routh's Specimen of Acardiac Fœtus (*'Transactions,'* vol. xxxii, p. 347).

This monster is a specimen of Acardiacus Acephalus. The abnormal aorta exists, but there is no trace of a heart. The viscera are as described in the original report.

J. Bland Sutton.
Amand Routh.
Alban Doran.

ANCIENT GREEK CHARM FROM CRETE REPRESENTING WOMAN IN LABOUR.

By Alban Doran for Ernest Hart.

This small object in gold was found in an ancient Greek tomb in Crete which Mr. Hart had recently

visited. It was in the form of a gold charm, *repoussé*, in yellow beaten gold, the subject being a woman seated with legs parted in the attitude of labour; the shoulders being expanded and the hands resting firmly on each

thigh. The genital parts are exposed and the abdomen is characteristically enlarged. This specimen is rare and of archæological value. Its date is probably three to four years B.C., acording to the other objects contained in the same tumulus. It is executed in a very archaic and yet spirited workmanship. It is interesting to note that the sitting attitude of labour which is here seen is that which is still adopted by the women of Crete. A special chair, termed σκαμνος in the island, has been devised to facilitate delivery in that position.

CYSTIC OVARY, THE SEAT OF HÆMORRHAGE.

By M. Handfield-Jones, M.D.

This cystic ovary, about the size of an orange, had been removed from a patient suffering from profuse and exhausting menorrhagia. The hæmorrhage which had started a year previously, after a serious railway injury, had reduced the patient to a condition of profound anæmia and debility. The loculi of the diseased ovary were filled with liquid blood in varying stages of decomposition. After the operation the patient had rapidly improved and no further hæmorrhage had been reported.

Dr. Horrocks mentioned a case of uterine hæmorrhage following an accident. The patient was found to have an acute retroflexion of the uterus with prolapse of the ovaries. She continued to suffer from pain and menorrhagia, but no operation had been performed or suggested for the removal of her ovaries, and so it was impossible to say if they were diseased. The retroflexion of the uterus was looked upon as sufficient to account for the hæmorrhage.

CANCEROUS UTERUS REMOVED BY VAGINAL HYSTERECTOMY: NO RECURRENCE NINE MONTHS AFTER OPERATION.

By H. T. Rutherfoord, M.D.

Dr. Rutherfoord exhibited a uterus which he had removed by vaginal hysterectomy in May, 1890. The patient was fifty-four years of age, the mother of eight children. She had ceased menstruating for three years past, when a sanguineous, rather fœtid discharge showed itself. Cancer of the cervix was diagnosed and an operation advised. In separating the bladder from the anterior uterine wall a small opening was made in the bladder but was immediately sewn up. The broad ligaments were clamped by Greig Smith's forceps and removed thirty hours after the operation. The patient made an uninterrupted recovery, and when seen nine months after was in excellent health with no signs of a return of the disease. A small vesico-vaginal fistula was present, but by using a female urinal the patient stated that she was saved all inconvenience. The disease was a glandular epithelioma extending upwards towards the uterine cavity, and on one side had advanced just beyond the internal os into the body of the uterus.

OVARY CONTAINING THREE DERMOID CYSTS.

By S. W. Wheaton, M.D.

Early Tubercular Ulceration of Uterine Mucous Membrane.

S.W.Wheaton del. West, Newman chromo.

EARLY TUBERCULAR DISEASE OF UTERUS.

By S. W. Wheaton, M.D.

Dr. Wheaton showed a drawing and microscopical preparations of early tubercular disease of the uterus. The patient, aged 18, single, was admitted with a swelling in the right iliac region which was opened and from which pus continued to be discharged until her death three months later from exhaustion. At the post-mortem examination the abscess was found to be connected with localised suppurative peritonitis, due to the perforation of a Fallopian tube by tubercular ulceration. The mucous membrane of the uterus was extremely congested and presented numerous pink semi-transparent prominent nodules, their size varying from that of a mustard seed to a split pea. In addition, at the level of the internal os uteri there were two small ulcers with overhanging edges. Microscopical examination showed that the nodules were local deposits of tubercle, the greater part of the mucous membrane being healthy. He had not been able to find any account of a case in which tubercle had been observed in the uterus in such an early stage, since in most of the recorded cases the mucous membrane had been extensively destroyed by ulceration and covered with caseous material. Professor Cornil had, however, recorded the results of injection of cultivations of the tubercle bacillus into the uterus in guinea pigs, and had produced similar lesions. In the present instance Dr. Wheaton had found tubercle bacilli and giant cells in the nodules on the mucous membrane.

A PAIR OF INCIPIENT OVARIAN CYSTS.

By J. D. Malcolm, M.B., C.M.

CASE OF SUBMUCOUS FIBROID PRESENTING AT THE OS UTERI TEN DAYS AFTER DELIVERY: LABOUR NORMAL.

By G. Ernest Herman, M.B.

L. E—, aged 34, was admitted into the General Lying-in Hospital on May 31st, 1890. Began to menstruate at twelve, and was regular, copiously and with much pain, till marriage two years ago. Since marriage she had had two miscarriages, the last in May, 1889; and the menstrual pain had diminished. She last menstruated in August, not copiously. In January she suffered from perityphlitis, which she had had twice before, and was very sick throughout the whole pregnancy, but had no hæmorrhage. Breech presentation. Labour lasted five and a half hours. Liquor amnii 29 oz. Child weighed 6 lb. 5 oz. Placenta (weight 16 oz.) expressed half an hour after birth of child. About 3 oz. of blood lost. Lochia red in colour for ten days after delivery, but not excessive in amount, nor offensive. No fever. On eleventh day lochia had ceased. Patient was examined by Dr. Herman, who found that the cervical canal admitted the finger, and that within it was a solid mass, rounded and smooth on the surface. Examination did not produce hæmorrhage. Ergot was prescribed; and this was followed during the next three days by the passage of some shreds of decolorised clot.

June 15th.—Patient was discharged, with instructions to continue taking the ergot mixture.

27th.—Patient was admitted into the London Hospital.

30th.—The local condition being about the same, the patient was put under ether. The mass was found to be a submucous fibroid growing from the posterior wall of uterus. It was removed by avulsion. There was slight hæmorrhage afterwards, which was removed by swabbing with perchloride of iron. In the evening, the tempera-

ture rose to 102·5°, but it was normal on the next day. No other bad symptoms followed, and patient left the hospital quite well on July 11th.

Dr. Herman thought it scarcely possible that the tumour could have grown in the ten days following delivery. Unless it had done so, it must have been in the uterine wall during pregnancy and labour; and the case was important, as showing that the presence of such tumours did not necessarily produce the disturbances of pregnancy and labour apparent in some cases.

A CASE OF CANCER OF THE UTERINE BODY, ILLUSTRATING THE DIFFICULTY OF DIAGNOSIS BETWEEN THIS DISEASE AND SENILE ENDOMETRITIS.

By G. Ernest Herman, M.B.

M. A. T—, aged 65, admitted into the London Hospital May 1st, 1890. Menstruation began at fifteen; she married at twenty-six, and had seven children. Menstruation ceased at fifty. No previous illness of importance. In October, 1889, she first noticed a discharge, sometimes pale, sometimes red in colour. At first she had no pain, but after about a month pains in the back and thighs and a bearing-down sensation set in. The discharge was never offensive. She had been losing flesh for some months. Ten or fifteen years ago her weight was 11 stone. On admission she weighed 8 stone 9 lbs.

May 5th.—Patient was examined under anæsthesia. The uterus was moveable. The cervix was mottled with red spots and lines, but otherwise healthy. The vaginal portion was smooth, and there was no marked enlargement. The cervix was easily widened by means of Hegar's dilators until it would admit the finger. The length of the uterine cavity was four inches. As the dilators first

introduced were withdrawn, a gush of brownish fluid with a few old clots followed. On exploration with the finger the uterine cavity was found expanded, its walls pliable, its internal surface smooth everywhere, excepting for a little roughness on the right side. The wall was not so rough as that of a uterus from which a placenta has been recently detached. There was no growth projecting enough to be scraped off, and no elevation larger than a hempseed. No ulceration was felt. The vagina and uterus were washed out with a 1—1000 sublimate solution.

Injections of nitrate of silver into the uterine cavity twice a week were ordered. This was done at first with a solution of gr. j, then of gr. ij to the ounce. After May 30th the strength was increased to gr. v ad ℥j, and after June 15th to gr. x ad ℥j. This caused pain. Under this treatment the discharge so much diminished in quantity that the patient ceased to be aware that she had any, although when a bougie was passed a small gush of discharge followed its withdrawal: and the discharge ceased to be sanious, and became ordinary pus. On July 4th the discharge was again brownish. After this date the patient went out of London, and was not again seen till October 3rd. Then, as the discharge continued, she was re-admitted. Her weight was now 8 st. 11 lbs., so that she had gained 2 lbs. in the five months following the commencement of treatment.

October 7th.—The uterus was removed. The vaginal portion presented no sign of disease except the red spots and lines before mentioned. But on trying to pull down the uterus, the cervix was found to be very friable, so that it broke away when laid hold of. Patient died on October 12th. The temperature only once rose to 100°, and the pulse only rose to 100 on the day before death. There was great flatulent distension of the abdomen, and vomiting, but no pain, and no action of the bowels. No necropsy was allowed, but the great distension, together with the absence of fever or acceleration of pulse, seemed to point to its being due to obstruction of the bowels.

The cervix uteri was so broken up by volsellæ in removal that its condition when intact cannot be described. The inner surface of the body of the uterus was rough, from the presence everywhere of minute warty outgrowths, none of them larger than a hemp-seed.

Microscopic examination of sections of the body of the uterus shows a covering consisting of many layers of pavement epithelium, differing from that covering the vaginal portion in health, in that the nuclei were larger, and there was no appreciable difference between the deeper and more superficial cells. Beneath this could be seen solid masses of epithelial cells projecting into the subjacent tissue, and also gland-spaces, some lined all round by columnar epithelium, others with columnar epithelium at some parts, but with heaps of epithelial cells projecting into them at other parts. Owing to the broken-up condition of the cervix, it was not possible to identify the situation or direction of the sections taken from it. They showed processes of epithelial ingrowth like those in the body, but much larger. Some showed the bird's nest arrangement formerly spoken of as characteristic of epithelioma.

Dr. Herman thought this case interesting in several ways, but chiefly in its clinical bearing on the relation between purulent senile endometritis and cancer. Some believed that that form of endometritis, if neglected, developed into malignant disease. In this case he had at first thought that the disease was not cancer, for there were no distinct outgrowths. This opinion was for a time strengthened by the fact that under treatment the discharge diminished, and the patient gained flesh. He regretted that he had not tried to detach a piece of the endometrium for microscopic examination, but he had not done so because there was no outgrowth projecting enough to be easily scraped off. He did not think the case proved that endometritis might develop into cancer, but it did show that the diagnosis between the two conditions might be impossible without microscopic examination. But

the results of microscopic examination were sometimes fallacious. A case published by the late Dr. Matthews Duncan in the 'Transactions,' vol. xxi, seemed to show that senile endometritis, if not cured, ran much the same course as malignant disease. If so, removal of the uterus would be the best course to pursue in any case of senile endometritis that did not quickly get well under treatment, even if clear evidence of cancerous change should not be obtained.

The specimen was also interesting as being a rare form of disease of the uterine body.

CONGENITAL DIAPHRAGMATIC HERNIA.

By Herbert R. Spencer, M.D.

Dr. Herbert Spencer showed a specimen of congenital diaphragmatic hernia from a male child which measured 18 inches in length and weighed 4 lbs. 7 oz. About one minute after birth the child became intensely blue, made a few gasps and died.

The hernia was on the left side and was due to the absence of the left half of the diaphragm. The whole of the front of this side of the thorax, except the extreme apex, was occupied by a large pyramidal piece of the left lobe of the liver which had passed through the opening. This piece of liver was deeply constricted at its base by the hernial ring. The rest of the left side of the thorax was occupied by the whole of the small intestines, the cæcum and vermiform appendix, the spleen and the greater part of the stomach. There was no sac to the hernia.

The left lung was rudimentary and of the size of an almond. The right lung was congested, slightly aërated, and had petechiæ on its surface. The heart was pushed

over to the right side. There was great congestion of the meninges of the brain, some œdema at the base, and a slight extravasation of blood had occurred at the convexity of the brain and at the posterior surface of the cerebellum.

Dr. Spencer called attention to an interesting communication, published in the 'Bulletin de la Société Anatomique de Paris' for December, 1890, from Madame Henry, head midwife to the Maternité at Paris. This paper contained full details of the symptoms and physical signs observed at birth in five cases of diaphragmatic hernia, four of which were diagnosed during life.

With reference to the statement of Madame Henry that the whole of the right side (thorax and abdomen) was dull to percussion and the left side resonant, Dr. Spencer pointed out that in a case such as that now exhibited the large hernial portion of the liver would give rise to dulness on the left side in front, and that in cases of right-sided hernia, such as two which were exhibited by him to the Obstetrical Society in 1890, the small intestines occupying the posterior part of the right side of the chest would give rise to resonance in that situation.

BLIGHTED OVUM WITH FLESHY DECIDUAL HYPERTROPHY.

By John Phillips, M.D.

Dr. John Phillips showed a specimen of blighted ovum. The woman was thirty-six years of age, with one child.

She herself states that she had passed two substances previously similar to the specimen now exhibited. She supposed herself six months pregnant. The ovum was expelled entire with scarcely any pain, but with some hæmorrhage. It was a pyriform mass with the obtuse

end corresponding to its fundal insertion, the conical end showing a mould of the cervical canal. On incising it a yellowish, dark straw-coloured, semi-opaque fluid escaped, to the amount of 6 oz., but no blood-clots were present.

At the cervical extremity of the ovum there was a distinct separation into decidua reflexa and vera. The fœtus attached by a thick cord to a rudimentary placenta had apparently reached the sixth week of development.

No history of syphilis could be obtained nor could any cause be made out for the abnormality.

Annual Meeting.

The audited balance-sheet of the Treasurer (Dr. Herman) was read.

It was moved by Dr. Champneys, seconded by Dr. Gow, and carried unanimously—"That the audited report of the Treasurer just read be received, adopted, and printed in the next volume of the 'Transactions.'"

The reading of the report of the Honorary Librarian (Dr. William Duncan) then followed, and after its reading Dr. Herman moved, and Dr. W. S. A. Griffith seconded, "That the report of the Honorary Librarian be received, adopted, and printed in the 'Transactions.'" This was carried.

Report of the Honorary Librarian.

"During the past year exactly 100 volumes have been added to the Library. These are made up as follows:—Forty-one books, 24 of which were presented, and 17 purchased; 4 volumes, containing 37 pamphlets, of which latter 19 were presented, and 18 bought; in addition there are 55 volumes of periodicals; the total number of volumes in the Library now amounts to 4238.

"Since the last Annual Meeting the Society having secured on lease two large and exceeding well-lighted rooms at 20, Hanover Square, these have been ornately decorated and well furnished, including electric light fittings. The removal of the books, &c., from Berners Street into these rooms has been carried out under the personal supervision of the Librarian, Mr. Savage, to whose care and skill the Society is indebted that no loss of, or damage to, any of its property has been incurred.

"An oil painting of Dr. Rigby, the first President, was

BALANCE-SHEET OF THE OBSTETRICAL SOCIETY OF LONDON.

(Abstract of the Receipts and Expenditure for the year ending December 31st, 1890.)

1890. RECEIPTS.	£	s.	d.
To balance from 1889	445	6	10
„ (1) 614 Annual Subscriptions at £1 1s., realising	644	14	0
„ (2) 1 Composition Fee at £15 15s. £15 15 0			
2 Ditto at £10 10s. 21 0 0			
24 Ditto at £5 5s. 126 0 0			
	162	15	0
„ (3) Midwives' Examination Fees	192	3	0
„ (4) Sale of 'Transactions' and 'Rules for Infant Management' (Longmans) £51 18 0			
Do. do. (Society) 6 15 0			
Do. Duplicate Books 0 4 9	58	17	9
„ (5) Royal Medical and Chirurgical Society 5 0 0			
Sale of Fixtures, &c., 54, Berners Street 7 0 0	12	0	0
„ (6) Interest on Consols	48	5	4

Amount of Stock, 2¾ per Cent. Consols, standing in the names of the Trustees £1800 0 0

Audited and found correct,
January 31st, 1891.
(Signed) PERCY BOULTON.
AMAND ROUTH.
JOHN PHILLIPS.
W. J. GOW.
ALBAN DORAN.

£1564 1 11

1890. EXPENDITURE.	£	s.	d.
By (1) 'Transactions,' Vol. XXXI, Printing, Lithography, Paper, Binding, Index, and delivery of Volume	295	10	4
„ (2) Library: Books Purchased and Binding	43	17	9
„ (3) Museum and Library: Rent £164 5 4			
Librarian, Salary and Commission 199 14 4			
Repairs to Furniture, Cleaning, Coals, Lighting, &c. 26 0 4			
Insurance 2 7 0			
Petty Disbursements 2 10 2	394	17	2
„ (4) General Meetings and other Expenses: Expenses of Meetings £37 5 7			
Stationery and Postage 62 17 4	100	2	11
„ (5) Examination of Midwives: Fees to Examiners £144 2 3			
General Expenses 16 1 5	160	3	8
„ (6) Extraordinary Expenses (in connection with Removal of Library): Dilapidations, 54, Berners Street £35 0 0			
Legal Charges 28 12 10			
Moving, Painting, Papering, Furnishing, Fitting up Library, Electric Light Fittings, &c. 239 2 1	302	14	11
„ (7) Banking Expenses: Commission, Stamps, Cheque Book, &c.	0	11	4
Balance, as per Bank Book £269 5 4			
Cheque paid in, but not cleared 1 1 0			
£270 6 4			
Less Cheque drawn, but not presented 4 2 6	266	3	10
	£1564	1	11

BALANCE-SHEET.

presented to the Society by his daughters, and it now hangs over the fireplace in the chief room. It is to be hoped that Dr. Rigby's successors in the presidential chair (or their relatives or friends) may be disposed to follow the example of this graceful gift.

"William Duncan."

The Annual Report of the Chairman of the Board for the Examination of Midwives (Dr. Black) was then read.

Annual Report of the Board for the Examination of Midwives.

"The candidates for the Society's diploma are still increasing in number. Last year there were 202 examined, of whom 159 were successful, and 43, or nearly 21·3 per cent., failed. In 1889 the number examined was 168, and the failures 25, or nearly 14·9 per cent.

"The total number examined from 1872 to the end of last year has been 1117, and the number rejected 197, or 17·6 per cent. Two midwives have been struck off the list for misconduct, so that there are now on our register 918, exclusive of those who passed last month. How many of these 918 midwives may have ceased to practice from death or other causes we have no means of ascertaining.

"J. Watt Black,
"*Chairman of the Board of Examiners.*"

"*February 4th,* 1891.

Dr. Percy Boulton proposed that the Report of the Chairman of the Board for the Examination of Midwives be received, adopted, and printed in the 'Transactions,' and that the cordial thanks of the meeting be given to Dr. Black, who now retires from the office of Chairman of the Board. As one of the Examining Board, Dr. Boulton felt sure that he only expressed the opinion of all his colleagues in saying that Dr. Black would be much missed

at the examinations, though regret at his loss was tempered by the fact that Dr. Black was to go to a higher sphere in assuming the presidential chair.

This proposal was seconded by Dr. Boxall, and carried *nem. con.*

Dr. Aveling suggested that some of the money received as examination fees from midwives, amounting now to nearly £200 a year, might be appropriately spent in giving prizes to the more successful candidates for the Society's diploma.

The Scrutineers having presented their Report, the result of the Ballot was declared by the President as follows:—

Honorary Fellow (*foreign subject*).—S. Tarnier, M.D., Professor of Obstetrics, Faculté de Médicine de Paris.

Officers and Council.

President.—J. Watt Black, M.A., M.D.

Vice-Presidents.—Percy Boulton, M.D.; Thomas Charles Steuart Corry, M.D. (Belfast); Thomas Crawford Hayes, M.A., M.D.; Evan Jones (Aberdare); William Appleton Meredith, M.B., C.M.; Alfred Joseph Tapson, M.B.

Treasurer.—G. Ernest Herman, M.B.

Chairman of the Board for the Examination of Midwives.—Francis Henry Champneys, M.A., M.D.

Honorary Secretaries.—Alban Doran, Peter Horrocks, M.D.

Honorary Librarian.—William Duncan, M.D.

Other Members of Council.—Albert Charles Butler-Smythe; Frederick William Coates, M.D. (Salisbury); Charles James Cullingworth, M.D.; W. Radford Dakin, M.D.; S. Houston Davson, M.D.; Henry W. Freeman (Bath); John H. Galton, M.D.; Henry Gervis, M.D.; William Lenton Heath, M.D.; Joseph Johnston, M.D.; Henry Ambrose Lediard, M.D. (Carlisle); Henry Colley March, M.D. (Rochdale); Thomas Cargill Nesham, M.D. (Newcastle-on-Tyne); G. R. Turner Phillips; Joseph

Henry Philpot, M.D.; John Baptiste Potter, M.D.; Herbert R. Spencer, M.D.; Harry Speakman Webb (Welwyn).

The President then delivered the Annual Address.

ANNUAL ADDRESS.

Gentlemen,—I have again to congratulate the Society upon a prosperous year. Forty-nine new Fellows were elected during the year, while 41 were lost by resignation and erasure, and 7 by death. The total number of Fellows on December 31st was 739, the number of ordinary Fellows being three more than at the corresponding date of last year. This increase is not, indeed, a large one, but, since it compares with a slight diminution in the two previous years, we may take it as an indication that our Society is now again expanding.

The number of volumes in our Library amounts now to 4238, 100 having been added during the year, of which 26 were donations.

The number of candidates who present themselves for our diploma for midwives increases yearly. During the past year the number has been 207, of whom 159 passed, and the total number on the register is now 918.

The most notable event of the year has been the removal of our Society to its new premises in this building, of which we have already had time to appreciate the advantages. Not the least among these is the adoption in our Library of the electric light, which will conduce greatly to the preservation of our books. The light has proved both brilliant and steady, and not very much more costly than gas. The removal, and the adaptation of furniture and book-cases to the new rooms, have necessarily involved a considerable outlay, which must be re-

garded as an expenditure of capital, since we have now obtained security of tenure under a lease for twenty-one years. Taking this into account, I believe that the financial position of the Society, as shown by the Treasurer's balance-sheet, which has been read, will be regarded as very satisfactory. But we should still bear in mind that a further increase of our numbers is desirable, in view of the increased rental which we now pay.

Our losses by death during the year, though in one sense very heavy, are not very great in numbers.

William Butler Young, M.R.C.S.England, L.S.A., was the son of a clergyman and schoolmaster at Reading, in which town also his uncle was for many years a medical practitioner. He was educated at King's College, qualified in 1844, and himself practised in Reading for forty years. At one time he held the office of surgeon to the Sonning Dispensary. He was also for many years Hon. Secretary to the Reading Pathological Society, but resigned about ten years ago owing to the pressure of other engagements. Mr. Young was one of the old school, strictly conservative in his ideas, both professional and political. He was a man of high principle and great uprightness of character, and was intimately connected with the evangelical section of the Church of England at Reading. He never married, and lived a very frugal and abstemious life. He died on March 22nd, 1890, at the age of sixty-eight.

William Pollard, F.R.C.S.Eng., L.S.A., belonged to an old Devonshire family, being a descendant of Sir Hugh Pollard, one of the purchasers of Torre Abbey at the dissolution of the monasteries. He began his medical education as apprentice to his uncle, Mr. M. W. Pollard, who was in practice at Torquay. His uncle being a master of foxhounds, Mr. W. Pollard in his younger days was also well known in the hunting field. He afterwards studied at St. Bartholomew's Hospital, where he soon distinguished himself, gaining one of the anatomical prizes at the end of his first session. After taking the qualification of

M.R.C.S., he was for six months clinical clerk under Sir George Burrows, who ever after held him in great esteem. Leaving St. Bartholomew's in 1841, he studied for a time in Paris, and then settled in Torquay, where he practised for nearly fifty years, respected and beloved both socially and professionally. He lived a life of great usefulness and unselfish work, and was ever ready to afford his skilful help in time of need to the poor, or to his professional brethren, by whom his services were frequently sought. He was for many years Honorary Surgeon to the Torbay Infirmary, to the Western Hospital for Consumption, and the Erith Home for Ladies. He was also at one time Officer of Health for Tormoham, where he did good service in an epidemic of cholera. Mr. Pollard died on March 29th, 1890, at his residence, Southlands, Torquay, at the age of 70.

Giosue Sirignano was elected a Fellow of our Society in 1876, at a time when the law which has always existed, limiting the Fellowship to those who hold a British qualification, was not quite strictly enforced. He died suddenly at Naples, where he practised, on March 7th, 1890, leaving a widow to survive him. I regret that I am unable to give particulars of his life.

Frantz Christian Faye was born in 1806. He became qualified in Medicine in 1831, but did not take the degree of Doctor of Medicine till 1842. Soon after his first qualification, he went on a mission to study an outbreak of cholera at Archangel. Though eventually distinguished as an obstetrician, his first study seems to have been rather of the other sex, for the title of his Latin graduation thesis was "De vesiculis seminalibus." He devoted himself much after this to the hygiene and arrangement of hospitals, especially maternity hospitals and hospitals for children. In 1850 he removed to Christiania, where he became Professor of Midwifery in the University. Among his principal works may be mentioned one on "Embryotomy and Vanhuevel's Forceps," "Uterine Deviations," 1856, "Diseases of the Female Genitals,"

1863, "On Diseases which may spread epidemically, especially Puerperal Fever," 1872, and his "Contributions to Obstetric Pathology."

Dr. Faye was physician to King Oscar I, as well as to his son Charles XV, and many honours were conferred upon him. Among others he was Knight of the Swedish North Star in diamonds, a personal gift from King Oscar, and also Knight of the Danish Danebrog.

He was a very active member of a temperance society which has done much to restrain spirit drinking in Sweden and Norway, but considered total abstinence to be too utopian for general adoption.

He was fond of the English, and in early days travelled much in England, Scotland, and Ireland. He reckoned Sir James Simpson, Dr. Matthews Duncan, and Dr. Robert Barnes among his friends. He was elected an Honorary Fellow of our Society in 1863.

For many years Dr. Faye had suffered from rheumatism, and had been compelled in consequence to retire from his position at the University in 1875, but he preserved the keenness of his faculties to the last. He died very quietly, without any obvious disease except old age, on May 9th, 1890, at the age of eighty-three. He married in 1842, and leaves a son, Dr. L. Faye, also practising in Christiania, and a daughter.

Montagu H. C. Palmer, M.R.C.S.Eng., was the son of Dr. Silas Palmer, of Newbury, and studied medicine at St. Thomas's Hospital. He was distinguished in his student's career, and gained the Physical Society's prize for 1871–72. He married at the age of twenty, and settled immediately in practice, joining his father at Newbury. He had a large and worrying practice, partially, although by no means entirely, among the middle and lower classes. He won the hearts of his patients by his manner, his unvarying attention, and his liberality among the very poorest in providing from his own kitchen positive necessities for existence. As a surgeon he was bold as well as successful; as an obstetrician always ready to act on any

emergency, and he had a large midwifery practice. In general medical practice his diagnosis and prognosis were good, and his acquaintance with and application of many of the newest remedies gave evidence of his determination to be in touch with the times.

Notwithstanding the many calls upon his time, he proved himself an excellent antiquarian, a good natural historian, and a botanist. He was elected early in life a Town Councillor, and attained the dignity of Mayor of the Borough at an earlier age than any of his predecessors in that office. He left behind him quite a museum of antiquities, of old china, old oak carvings, silver, and coin, and pictures, as well as pathological specimens. An assured prosperous career was terminated abruptly, perhaps from overstrain of mind and body, at the early age of thirty-nine, and he died on May 22nd, 1890, leaving a widow and seven children.

I come next to a loss which is the greatest which has ever befallen our Society, that of our distinguished Honarary Fellow, Dr. Matthews Duncan. We should have mourned his loss to science, as one of the greatest men who have helped to perfect the art of Obstetric Medicine, even if he had remained merely an Honorary Fellow, living at a distance. But since he removed to London and took an active part in the work of our Society, we have learned to admire and esteem him more: and now feel that his death has left a blank in our midst, which nothing can ever fill.

James Matthews Duncan was born in April, 1826, at Aberdeen, where his father was engaged in commerce. He was educated at the grammar school under the mastership of Dr. Melvin, and at Marischal College, Aberdeen, where he took the degree of M.A. in 1843. Having commenced the study of Medicine at Marischal College, he continued it at Edinburgh. Later, he spent some time in Paris, and made use of the large opportunities for observing necropsies. These afforded to lay the foundations of his extensive knowledge of the pathology of the

puerperal state. Then he returned to Aberdeen to take the degree of M.D. in 1846, at the age of 20.

The event which decided what special branch of the profession he should follow was his appointment in 1847, soon after his graduation, as private assistant to Sir James Simpson, of whose Midwifery class he had been a member while studying at Edinburgh. Simpson was at that time engaged in those experiments with ether and other substances which led to the general introduction of chloroform as an anæsthetic. It is a well-known story how Matthews Duncan was the first person ever rendered insensible by chloroform, and how Simpson himself, and Keith, subjected themselves to the same experiment on the same night.

Four years later, on ceasing to be Simpson's assistant, he commenced private practice in Edinburgh, and became a Fellow of the Royal College of Physicians of Edinburgh in 1851. He rapidly gained success in practice, but from the first devoted a large amount of time and labour to research and literary work. He had a large share in the establishment of the Royal Hospital for Sick Children, and was one of its original physicians. In 1853 he began a course of systematic lectures on "Midwifery and the Diseases of Women," which gained ever increasing fame, and established his reputation as a great teacher. In 1861 he was appointed Physician for the Diseases of Women to the Royal Infirmary, and it was in this position that much of his research and teaching was carried on. He writings commenced with one published in 1853, in the 'Monthly Journal of Medical Science,' entitled "The Theory of Menstruation in Early Pregnancy: Superfœtation and the Site of Insertion of the Ovum." In this he showed how menstruation might occur in early pregnancy from the decidual cavity. In 1855, appeared the "Statics of Pregnancy," in which the physical cause of the usual position of the fœtus in utero was studied; and a paper "On the Mode of Presentation of Dead Children in Labour." Other papers quickly followed; in 1856 one "On

a hitherto undescribed Disease of the Uterus, namely, unnatural Patency of the inner extremity of a Fallopian tube : in 1857, one "On the Internal Surface of the Uterus after Delivery;" and in 1858, "Notes on the History of the Mucous Membrane of the Body of the Uterus."

Most of these papers were published in the 'Edinburgh Medical Journal,' or the 'Transactions' of the Royal Society of Edinburgh. The chief work, however, which formed an epoch in the history of Midwifery was the series of papers first published in a complete form in 1868 under the title of 'Researches in Obstetrics.' This contained some of the articles already mentioned, and others published before in the Medical Journals, whose fame had already led to the election of Dr. Matthews Duncan as an Honorary Fellow of our Society in 1862. A similar honour was conferred upon him in later years by a large number of Societies on the Continent and in America; but we may remember with satisfaction that we were the first in this way to acknowledge his distinction.

In the 'Researches in Obstetrics' the various articles were seen to form a connected series of investigations on four main subjects:—The Statics of Pregnancy; the Pelvis studied with a view to Obstetrics; the Physiology and Pathology of Pregnancy and the Puerpural State; and the Mechanism of Natural and Morbid Parturition. The most striking feature in this book was the demonstration of the action of the sacrum as a beam and not as a wedge; of the mode of transmission of the weight of the body to the pelvis; and its effect in modifying both the normal development of the pelvis and the production of its various deformities. It was for the first time made evident how a true comprehension of the mechanical forces which affect normal development makes it easy to understand the production of all pelvic deformities, including the rachitic and the malacosteon pelvis. More especially, all the peculiarities of the oblique pelvis of Naegele were now accounted for; and, conversely, this form of pelvis afforded, and still affords, one of the strongest pieces of

evidence of the truth of Dr. Matthews Duncan's views. The fourth part of the work dealt chiefly with the power exerted in labour; and with the Naegele obliquity of the fœtal head. It was contended that the lateral obliquity described by Naegele as existing at the brim is not found in normal labour, though it is characteristic of the flattened pelvis. This view has been generally accepted, and the five movements of the fœtal head, as enumerated in the old text-books, of which obliquity was one, have thereby been reduced to four.

Dr. Matthews Duncan continued his researches on the mechanism of parturition; and the articles published at various times, with several of those collected in the 'Researches in Obstetrics,' were included in another work, published in 1875; and entitled "contributions to the Mechanism of Natural and Morbid Parturition, including that of Placenta Prævia." In this work several points were elucidated, which have since found their place in all text-books of midwifery. Among these are the nutation at the sacro-iliac joint in labour; the behaviour of the cervix uteri in the later months of pregnancy, during labour, and after labour; and above all the mechanism of the expulsion of the placenta. It is the view advocated by Dr. Matthews Duncan, that the placenta normally descends folded upon a longitudinal axis, and not inverted, that has led to the general change which has taken place in the management of the third stage of labour, whereby expression of the placenta has been substituted for traction upon the funis.

On several of the subjects thus dealt with, further controversy has taken place and still continues, both abroad and in this country, notably with regard to the leverage of the sacro-iliac ligaments, to the behaviour of the cervix uteri in pregnancy and labour, and to the normal mode of expulsion of the placenta. But I believe it may be justly said that, in all of them, Dr. Matthews Duncan has proved to be right in the main; and that neither theoretical criticisms nor later researches

have led to more than certain qualifications or modifications of his views in minor points.

A favourite subject was dealt with in "Fecundity, Sterility and Allied Topics," published in 1886, and was further elaborated in his Gulstonian lectures delivered after his removal to London, and published in 1884. He took great interest in the estimate of the average puerperal mortality, as shown in an article "On the Mortality of Childbed in Maternity Hospitals, published in 1870." His estimate of the ordinary puerperal mortality at a higher figure than had generally been imagined was criticised at the time by the Registrar-General, but afterwards admitted by him to be well-founded.

All the contributions hitherto enumerated were upon midwifery. The first work which had an important influence on the science of gynæcology was one entitled "A Practical Treatise on Perimetritis and Parametritis," published in 1869. Like the obstetrical writings, this had a sound basis in the facts of pathology: and revealed to many the possibility of making an accurate diagnosis between forms of inflammation hitherto often merged together under the title of pelvic cellulitis. The author's great influence was shown by the way in which, through this treatise, the new terms of perimetritis and parametritis rapidly became familiarised in this country.

On the death of Sir James Simpson in 1870 it was generally expected that Dr. Matthews Duncan, who had already a European reputation as one of the greatest obstetricians of any time, would succeed to the Chair of Midwifery in the University of Edinburgh. The choice of the electors, however, fell on Dr. A. R. Simpson. This event had doubtless much to do with the result that he accepted the post of Obstetric Physician and Lecturer on Midwifery to St. Bartholomew's Hospital when it was offered to him on the retirement of Dr. Greenhalgh in 1877.

Dr. Matthews Duncan threw himself with characteristic ardour into his new sphere of work. Not content with the usual three or four lectures a week he adopted the

plan of lecturing on every week day morning throughout the summer session, and continued it to the end. This additional time enabled him not merely to lecture on midwifery as it is, but to enliven his subject with graphic sketches of its history, and to portray to his students what manner of men they were to whom we owe its advances.

He was most effective as a lecturer, with that deliberate impressive manner which we so well remember in the debates of our Society, and the impression which he gave of a perfect certainty on those subjects where certainty is possible, based on a very wide experience, and a complete knowledge of the literature of the subject. He made many enthusiastic disciples, and felt a just pride in having a larger class than had ever attended obstetric lectures in London before.

The high esteem felt by the profession not only for his scientific eminence, but for his uprightness of character, and his plain spoken candour in dealing with his patients, soon brought him a very large practice. He still found time, however, for much scientific work. The debates of our Society gained an added interest from his presence and constant participation, and he occupied the chair as President in the years 1881, 1882. Our 'Transactions' are indebted to him for many important papers, one or more in each year. Among them may be mentioned especially those on lupus of the female generative organs, with their splendid lithographic plates, which made the volume for 1885 so memorable.

Besides the Gulstonian lectures, delivered in 1884, and which have already been mentioned, Dr. Matthews Duncan edited Dr. Charles West's 'Lectures on the Diseases of Women,' adding to them some important material. He also published some of his clinical lectures, delivered every fortnight through the winter session at St. Bartholomew's Hospital, under the title of 'Clinical Lectures on the Diseases of Women.' This work went through four editions, and in the extended form which it assumed in the

later editions, became almost equivalent to a systematic treatise on gynæcology. That he did not take a narrow view of its sphere is evident from the titles of some of the chapters, such as those on Retention of Fæces, on Aching Kidney, and on Hepatic Disease in Gynæcology and Obstetrics. It thus appears that almost the only thing he did not do within his department of medicine was to write a systematic treatise on Midwifery. His was the nobler part of making the discoveries which minor men embody in their text-books.

In so controverted a subject as Gynæcology, it is natural that his views were not so generally accepted as in obstetrics. But his influence was great; and, by his determination to test all theories by the strict proof of pathology, and his hatred of any approach to quackery, he did much to elevate our branch of the profession.

With his devotion to the study of pure Midwifery, Dr. Matthews Duncan never aspired to be himself an operator in abdominal surgery. It was perhaps, partly the consequence and partly the cause of this, that his temperament always inclined to the cautious and conservative side as regards any operative treatment. It was a spirit which had doubtless its useful applications, but one which, if held universally, would have prevented some of the modern advances of surgery. It was shown in an article entitled "Is Ovariotomy justifiable or not?" published in the 'Lancet' in 1857. In later years he was completely converted by the improved results of ovariotomy, and was a warm admirer of Dr. Keith; but he was always reluctant to sanction any operation for removal of the uterine appendages, on account of fibroid tumour or other cause, and he was never convinced of the benefits of trachelorrhaphy.

Amongst other honours bestowed upon Dr. Matthews Duncan, the Universities of Cambridge and Edinburgh conferred upon him the degree of LL.D.; the University of Durham that of honorary M.D. He was an honorary Fellow of the King and Queen's College of Physicians, a

Fellow of the Royal College of Physicians of London, a Fellow of the Royal Society of London, as well as of that of Edinburgh; he was nominated by the Crown as a Member of the General Medical Council. He held the office of Examiner in Midwifery to the Universities of Oxford, Cambridge, and London.

In 1860 he married Miss Jane Hart Hotchkis of Castlemilk, Dumfriesshire. He had in all thirteen children. Mrs. Matthews Duncan and five sons and four daughters survive him.

Of late years Dr. Matthews Duncan generally spent the whole of the months of August and September at Appin House in Argyllshire. Those who had the fortune to enjoy his hospitality in that lovely spot know how charming was his household. Being fully occupied in London with his hospital teaching and private practice he used to devote some of this time of rest and recreation to writing those papers of which our Society has had the benefit.

In the spring of last year his health began to fail, and he suffered from gouty eczema, and from attacks of angina. He began as usual the summer course of lectures which was to have been his last before his retirement. He spoke for the last time in our Society at the June meeting; but about the middle of June he was compelled to discontinue his lectures. Towards the end of July, accompanied by his wife and some of his family, he went to Blankenberghe in Belgium. On August 7th he proceeded to Baden-Baden. Slight attacks of angina continued, and on August 17th he had a very severe one lasting several hours. After this the urine became albuminous; there was cutaneous œdema, and œdema of the bases of both lungs. He improved, however, so much under treatment, that it was intended to take him back to London on September 2nd. But on September 1st he died suddenly at 5 p.m. while sitting in bed supported by pillows.

The funeral took place on September 8th; the first

part at St. Mark's Church, North Audley Street; the interment at East Finchley Cemetery. Most of the leaders of the profession who were not out of town at the time were present, and Sir Richard Quain was deputed to represent the Queen.

John Armstrong, M.D., M.R.C.S.E., L.S.A., was born at Manorhamilton, Co. Leitrim, April 27th, 1805. At the age of fourteen he was apprenticed to his cousin, Dr. Anderson of Sligo. In 1821, at the age of sixteen, he went to Dublin to prosecute his medical studies, and was entered at the Richmond Hospital, and the Rotunda Lying-in Hospital. In 1826 he came to London, and entered at St. Bartholomew's Hospital. Before qualifying, he was for a year assistant to Mr. Adam Parke of Gravesend, brother of Mungo Parke, the celebrated African traveller. On passing the examination for the M.R.C.S. in 1828, he received, jointly with Mr. Solly of St. Thomas's, special commendation from Sir Astley Cooper, the President, for the excellent examination he had passed. He returned to Mr. Parke till 1829, and was afterwards assistant to Mr. Hunter of Islington, till in 1832 he went to settle in practice for himself at Sligo. At Sligo he had much practice in difficult cases of midwifery and thus laid the foundation of his success in that particular department.

In 1834 he became partner to Mr. Adam Parke of Gravesend, to whom he had formerly been assistant. This partnership lasted till 1846. He continued to practice at Gravesend, and in 1851 took his M.D. degree of Marischal College, Aberdeen. In 1873 he retired from practice, and went to live at Green Street Green.

Dr. Armstrong was surgeon, and afterwards consulting surgeon, to the Gravesend Infirmary and Dispensary, of which institution he was one of the founders. He was also Justice of the Peace for the Borough, and always took a great interest in all religious and social movements for the benefit of the people. He was held in great respect by his fellow townsmen, and highly esteemed by his professional brethren, who elected him twenty-two years ago

President of the South Eastern Branch of the British Medical Association, and deputed him as their representative on the General Council.

Dr. Armstrong was the author of several papers in the medical journals, among which may be mentioned, "Extirpation of Os and Cervix Uteri by the Écraseur," and "On the Induction of Premature Labour." He was elected a Fellow of the Society in 1861. He died November 26, 1890, at the age of 85, from an attack of pneumonia, after five days' illness.

During the early part of the summer, your Council was occupied with a subject, which, since then, appears to have become a somewhat burning question, namely the bill introduced into parliament under the charge of Mr. Pease for the examination and registration of midwives. This was the successor of several previous bills with a similar object, one or two of which the Government of the day had supported, but which parliament had never found time to pass. The advice of the Council was asked by the promoters of the measure as to the provisions of the bill, and the Council spent a considerable time in considering them.

The view taken by the Council was that the prime necessity was to obtain efficient examining boards, and so to secure that none but well-instructed midwives should be passed and placed upon the registers. There are difficulties in the way of requiring from midwives as long a period of study as might seem desirable. For it is very doubtful whether parliament would consider it equitable to exact from midwives a longer period of study than is required from medical students themselves in the subject of midwifery. But the period of study is somewhat diminished in importance, if the examination standard be above suspicion. It was also thought that the election of examiners by the County Councils was not the best possible method, because their selection would be apt to depend, not on purely scientific considerations, but on

general or local politics. Moreover the number of examining boards would be so great, that it would be difficult to maintain an equal standard of efficiency in all of them.

Accordingly the effect of the amendments suggested by your Council was that a strong central examining board should be established in London, to which questions of doubt could be referred by the local boards; and that there should be about ten or twelve local boards only throughout England and Wales. These would be in important towns, and no midwife would have to travel more than fifty or sixty miles for examination. On the examining boards would be a member of the staff of the County Hospital, and an obstetric physician to the hospital, whenever such existed, as well as one or more general practitioners. Your Council also advised that there should be not merely local registers, but a central register, which could be consulted like the Medical Register.

Most of these suggestions were adopted by the committee in charge of the bill. But the draft was again transformed, at the time, I believe, when the bill was taken up for a while by the Government. It was desired, I presume, to restore to the Privy Council the powers which we had suggested should be given to the Central Examining Board; and the county councils were also reinstated. I much regret that all our suggestions should have been swept away, and I think that the proposed bill, as at present drafted, is in need of amendment. Speaking only for myself, personally, I object to the clause admitting to the register all midwives now in practice. A similar clause with regard to dentists and veterinary surgeons has been found to lead to much abuse, but in their case it was considered inevitable. I think it quite unnecessary in the case of midwives. In the bill drafted originally by the Council of the Obstetrical Society, under the presidency of Dr. West, the assumption of the title of "registered midwife" only by an unqualified person, not

that of "midwife" generally, was made penal. If this provision were adopted, there would be no reason whatever for admitting to the register midwives in actual practice, unless they could pass the examination. The bill is also open to criticism on the ground that it leaves indefinite, to be decided by the General Medical Council, or the Privy Council, various points which might with advantage be defined in the bill itself.

Some of the objections, however, which have been made to the bill are obviously fallacious. The bill does not seek to legalise the practice of midwifery by women, for that has been legal in all countries from time immemorial. It is quite certain that Parliament will never make it otherwise, for Parliament has invariably refused to render illegal even the practice of medicine or surgery by persons not on the medical register. On the other hand, it is quite true that public registration would give midwives a legal status which they have not hitherto had, and it is important to make due provision that this should not enable them to go beyond their proper function as midwives. This question was raised by a complaint which was made to your Council that a midwife holding the diploma of the Obstetrical Society was engaged in a kind of practice not included in the function of a midwife, which is the attendance on normal labour only. It appeared that the Society was powerless in the matter. This led to the adoption of the "sponsio," which every midwife who receives the diploma of our Society has now to sign, and which runs as follows:—

To.....President of the Obstetrical Society of London.

"I undertake to abide by all the rules and regulations of the Obstetrical Society with regard to the duties and conduct of midwives, and to submit to the jurisdiction of its Council in the decision of all matters relating to my conduct as a midwife. I further agree that in case I shall hereafter be convicted of any criminal offence or be

guilty of any act or conduct which in the opinion of the Council renders me unfit or unworthy to hold its Diploma, the same may be forfeited by a resolution of the Council, in which case I will, on receiving notice in writing of such resolution, to be served either personally or by leaving the same at my then present or last known place of abode in the United Kingdom, forthwith give up such Diploma to you or to one of the Secretaries for the time being of the Society, and I agree that my name may be removed from the Register of Midwives kept by the Society; and I promise thenceforward to desist from the use of any designation or title implying possession of such Diploma."

It is also provided in the schedule of subjects for examination that the examiners are to satisfy themselves that the candidate understands the indications of abnormal labour, and the duties of a midwife with regard to the seeking of medical advice.

This is one of the subjects which in the proposed bill is to be left to the regulation of the Privy Council, who would doubtless give it proper attention. But in a matter of so much importance it would seem preferable, if suitable provisions can be devised, to have them explicitly stated in the bill itself. I believe that a well-regulated registration of midwives would diminish rather than increase the danger that midwives should become an inferior class of medical practitioners. At present there is nothing whatever to prevent any midwife engaging also in any kind of medical or surgical practice, except, of course, the liabilities to an action if she injures a patient by her incompetence. Even the induction of criminal abortion has been thought not to be unknown in the practice of some of these women.

But if a midwife obtains the status which registration would give her, she must in return be ready to assume some responsibilities. She may be made, and ought to be made, liable to be removed from the register if she exceeds her proper functions.

I do not wish now to anticipate the discussion which

may arise this evening, whether it is a mistaken course which our Society has followed for the last seventeen years in advocating legislation on this subject, apparently without any dissentient voice up to the last year. I venture only to express the hope that the result of any discussion may be that opponents of the present bill will devote themselves rather to devising proper safeguards than to opposing legislation, which, if carefully guarded, may be a great public benefit.

In conclusion, gentlemen, I have to express the pleasure which it has given me to preside at your debates, and to thank you for the courtesy which you have shown me, and which, during my term of office, has made the duties of the Chair extremely light.

It was then moved by Dr. John Williams, and seconded by Dr. Potter, "That the best thanks of the meeting be given to Dr. Galabin for his most interesting address, and that he be asked to allow it to be printed in the next volume of the 'Transactions,' and further thanks for the efficient manner in which he had presided over the meetings of the Society during his terms of office.

Dr. Cleveland proposed a vote of thanks to the retiring Vice-Presidents, Dr. Champneys, Mr. Elkington, and Dr. Aust Lawrence, and to the other retiring Members of Council, Mr. Bowkett, Dr. Boxall, Dr. Gibbons, Mr. Hallowes, Dr. Hollings, Mr. Maurice, Dr. Milson, and Dr. Nix.

This was seconded by Mr. Butler Smythe and carried unanimously.

THE EXAMINATION AND REGISTRATION OF MIDWIVES.

After the President's Address a discussion took place on the question of Examination and Registration of Midwives in respect to which the following Memorandum has been issued to the Fellows :—

Memorandum of the Proposed Legislation regarding the Examination and Registration of Midwives. (*Compiled from Minutes of Council and Transactions.*)

"The Obstetrical Society of London was the first in promoting the education of midwives.

"As early as the autumn of 1870, under the presidency of Dr. Hall Davis, a Committee was formed to consider what steps might be taken for the promotion of Obstetric Education. This Committee urged the institution of a Board for the Examining and Licensing of Midwives.

"The rules formulated were published at page 21, vol. xiv, of the Obstetrical 'Transactions." These were read at the Annual Meeting of the Society in 1872, and on the proposal of Dr. Graily Hewitt, seconded by Dr. Routh, they were carried unanimously, after a discussion by ten speakers.

"Examinations having been adopted, it was necessary to keep a Register.

"Up to December, 1890, 1130 candidates have offered themselves for examination, of whom 918 are now on the Register ; 197 having been rejected, 13 did not present themselves, and 2 have been struck off the Register for misconduct.

"The Society soon found that it would be advisable to call on the State to take over the Examination and Registration of Midwives which it had initiated, and consequently in the year 1873 a deputation of the Society was

made to interview Mr. Stansfeld on the subject. Since then repeated interviews have taken place, which were notified in the 'Transactions' and the Medical Journals.

"Year after year the question has been brought before the Fellows of the Obstetrical Society in the Presidental Addresses now published in the 'Transactions.'

"In 1874, Dr. Tilt discussed the question very fully (see Vol. xvi, pages 21 to 27.)

"Dr. West, in his Address in 1878, said that a scheme had been drawn up by the Council, with the sanction of the Society, for the Examination and Registration of Midwives. Vol. xx, page 12.

"Dr. Playfair, in 1880, Dr. Matthews Duncan in 1881, Dr. Gervis in 1883, and Dr. Potter in 1886, have each of them dwelt on the subject in their Annual Addresses, and their recommendations have each time been received and adopted by the Society.

"No dissentient voice on the part of any Fellow of the Society has been heard up to now.

"The objections which we learn have quite recently been raised in the medical press, and in circulars freely distributed amongst members of the medical profession, have never been previously made, either at any meeting of the Society, or by due communication to its Council.

"From year to year, successsive Councils have since 1872, carefully discussed every aspect of the question, and, through a system of examination, gained practical experience as to the value of examinations.

"It has appeared highly desirable that the class of midwives should be duly subjected to the restraint of a deliberate and judicious system of examination and registration.

"The Bill last submitted to the Council by the Parliamentary promoters, was much transformed from its original shape. Numerous amendments were suggested by the Council, which were accepted by the promoters of the Bill, but afterwards thrown out by the Select Committee of the House of Commons. Beyond supporting the prin-

ciple of registration, the Council of the Obstetrical Society is in no way responsible for the present Bill.

"The Council sees no reason, however, to depart from the view continuously held by all previous Councils of the Society, but emphatically approves of the principles of Examination and Registration of Midwives."

The PRESIDENT said that in the memorandum referring to the registration of midwives which had been circulated with the notices of the annual meeting, it was not intended by the Council to offer any unusual opportunity of discussion, but to call attention to the fact that the annual meeting was the constitutional opportunity for the Fellows in general to discuss any subject connected with the management of the Society, or to criticise the action of the Council. As the Council had nothing to do with the provisions of the bill now proposed for the registration of midwives, the question for discussion should be the general principle whether the examination and registration of midwives is a good thing, and not the details of the bill.

Dr. ROBERT BARNES drew attention to a memorandum circulated by the Council, the first paragraph of which, he said, contained one of the most extraordinary assertions ever put into a public document. It stated that "the Obstetrical Society of London was the first in promoting the education of midwives." In France and Germany midwives had been trained, educated, and certificated for more than a century, and even in London, at the British Lying-in Hospital, for more than 100 years; and nearly 100 years before the Obstetrical Society was instituted, midwives were carefully taught by lectures and demonstrations, and diplomas were conferred upon them, testifying to their skill and capacity for practice. The same thing was done by the Royal Maternity Charity. He believed that the Midwives' Bill now before Parliament was actually abandoned in deference to the opposing voice of the large body of the profession. That was an opposition in which he did not at all share, for he thought the principle of registration and examination was good and sound, and ought in some form or other to be carried out. That the bill was full of faults was certain, but it was so opposed by the great mass of active members of the profession that there seemed no hope of passing it. He could state from tolerably accurate information that the Members of Parliament who had signed the bill had withdrawn their names, and the bill was actually abandoned. Probably there would be a motion to appoint a Commission to examine into the subject, but whether it would come to anything he was unable

to say. He would suggest that the whole subject should be referred back to the Council for consideration.

In answer to Dr. Barnes, the PRESIDENT said that the clause was, perhaps, somewhat vague. It was not intended to assert that the Obstetrical Society was the first to educate midwives, but that it was the first public body in this country to advocate the promotion of their education by legislation.

Dr. AVELING said that the history of recent legislation on this subject began in 1878 when the Duke of Gordon, while amending the Medical Act of 1858, introduced a clause (No. 23) to provide for the examination, licensing, and registration of midwives. This clause was, however, struck out, for it was very properly urged that midwives and medical men ought not to be dealt with in the same bill. In 1882 the British Medical Association drafted a bill for regulating the practice of midwives, very much upon the lines of the proposals made by a sub-committee of the Council of this Society, but it was never submitted to Parliament. In 1890 the Midwives' Institute drafted another bill. Clause 5 gave a midwife legal power "to practise midwifery," and to recover fees for "the performance of any midwifery operation." This, of course, met with strong opposition, and the bill, which was in many other respects impracticable, was amended by a Select Committee, and was now before the House of Commons. The bill as it now stood was a great improvement on its predecessors, and might by further amendment be made quite satisfactory. Few appreciated the advantage of leaving the details of the bill to the Privy Council. If they were provided for it would be putting on a straight jacket, which could never be removed except by a fresh Act of Parliament. The clause which provides for the admission of midwives practising before the passing of the bill would not have been so much opposed if it had been noticed that the Privy Council would have the power to determine what the "prescribed evidence" of the right of a *bonâ fide* midwife to be registered should be. Dr. Barnes had allowed himself to be misled on two points. The Members of Parliament who backed the bill had not withdrawn their names. Sir W. Foster alone had done so, and not for the reason that he disapproved of legislation for midwives. It was an error also to say that the bill was opposed by the great mass of the profession. The returns from the branches of the British Medical Association showed that in round numbers 4000 were for legislation and 700 against. Dr. Aveling said the bill was not dead, it was passing through a refining fire, and would come out of it strong and useful. He moved, "That the Fellows approve the policy pursued by this Society for the last twenty years relating to midwives, and respectfully request the Council to continue their efforts to obtain for these women suitable education and legal registration."

Dr. CLEVELAND said from what he had read of the published

correspondence on the subject, as well as gained from other sources, he thought the principal objections raised by the opponents of the bill were—first, that it would fail to provide midwives sufficiently trained and educated for the duties they might be called upon to undertake, or rather those they might deem themselves competent to undertake; and secondly that, among some practitioners in some localities, the institution of legalised midwives would have an injurious effect on their practice. He believed the latter objection was in reality far more pronounced than the former, and thought, if such restrictions could be devised as would satisfy the opponents of the bill on this point, there would be no difficulty in legislating so that midwives should be made efficient for the particular duties they had to perform.

Dr. Griffith stated that some confusion undoubtedly existed in the profession, as the results of opinions having been asked on the Midwives Bill, before the primary question of abolition or continuance of midwives had been discussed and decided. It appeared to him to be impossible to abolish midwives; if this be so, there could be only one good alternative, namely, to take such steps that proper women were selected, trained, and placed under such restrictions that they will not exceed their recognised duties with impunity. There were obviously very great difficulties in the way, and the present bill was far from satisfactory, and in seconding Dr. Aveling's motion, which he did with pleasure, he felt that in the event of it being supported by the Society, it would be a recognition of the principle of the need for education, registration, and efficient restriction of midwives, and of the efforts of successive Councils to forward such a measure, which would at the present time prove of value to those who are endeavouring to solve the question. Dr. Griffith suggested that as a year would elapse before the next opportunity for discussing the question, the Council should from time to time acquaint the Fellows with any important steps taken by them.

Dr. Leith Napier wished to propose a course which would lead to more vital action that than which had been proposed by Dr. Aveling. The matter had been in the hands of the Council, and the Council had bestowed a great amount of time and care in preparing a bill which had been treated, he thought, extremely badly by the politicians who rejected it. At a meeting of the College of Physicians held recently, a Committee of four Fellows of the College was nominated by the President to consider the bill. What he would suggest was that four Fellows of the Society should be recommended to the Council to confer with the four Fellows nominated by the President of the College of Physicians, and that those gentlemen should be deputed to take charge of the bill, and to carry out the principle of the registration of midwives in the best way that might occur to them.

Dr. Lovell Drage referred to the action of the Council, and commented on the circular sent to the Fellows, which he supposed was intended to be an answer to his statement that the Society had not been consulted in the matter. The last date, however, upon which the matter was mentioned even in the Presidential Address was in 1886, or five years ago. He thought that after the severe and protracted labour which had been endured by successive Councils some facts and figures might have been produced in support of legislation on the subject. As it was there was not a single fact or figure before the Society to justify any legislation whatever. He protested against the idea that the government was bound to accept the decision of the Council in such a matter as this. The Society was entirely ignorant as to the lines upon which the Council were now going to legislate, and until they had information on that point he did not see what they were to discuss.

In answer to Dr. Drage, the President said that the occasions enumerated in the memorandum were only the principal ones on which the subject had been brought forward in the annual addresses, but it had been mentioned also on others, and certainly last year. When the subject was not referred to in any year, this simply meant that the Council had done nothing in the matter. Objections might have been raised at any former annual meeting as at this one, and moreover there was a provision in the bye-laws which enabled any three Fellows to procure a special meeting on any subject. In a long succession of Councils elected by the Society, no dissentient voice had ever been raised as regards the general principle. This afforded a strong presumption that the action of these Councils was in accordance with the general views of the Fellows.

Dr. Aveling said it was not the fact, as stated by Dr. Barnes, that the majority of the profession were against the bill. The question had been tested by the British Medical Association; every branch had been communicated with, and the result had been that the members for the bill were, in round numbers, 4000, and those against it, 700.

Dr. Des Vœux remarked that he had been present ten days previously at a meeting at the Grosvenor Hotel convened for the purpose of protesting against the Midwives Registration Bill. Great prominence had been given in the 'Lancet' to the report of this meeting, a prominence which the insignificance of the meeting hardly deserved, for out of all the practitioners in Westminster, Belgravia, Pimlico, and Chelsea, only fourteen were present. The fact that there were only three voters in opposition to the motion which was put to the meeting was stated, but the fact that only seven voted for the motion was carefully suppressed.

Dr. Crawford said the meeting referred to was called at very short notice. The number of names entered in the book as being present was seventeen. He stated also that as only three were in favour of the bill, the proportion against and for the bill was fourteen to three, the consequent inference being obvious to all.

Dr. Oliver said that as the question was big, and from the general practitioner's point of view very important, it ought to be fully and freely discussed. He thought it was more than probable that a state registration of midwives would give rise to serious troubles, and that the whole system would be open to great abuse. It would be found impossible to confine the work of these registered midwives to the poor, and if it were even possible to do so, when difficulty arose with a case, the general practitioner would then have to be found who would relieve the midwife of responsibility. Regarding the question of appointing four Fellows of the Society to confer with the four Fellows of the College of Physicians, Dr. Oliver was of opinion that the pure physician was quite capable of discussing the question of registration of midwives, if only he possessed a clear conscience, and was endowed with common sense. It was not requisite that a man should either be engaged in midwifery practice, or have had any special knowledge of midwives, in order that he might arrive at a conclusion regarding the advisability of denouncing or attempting to further the bill.

The motion was then put and carried, with two dissentients.

Dr. Leith Napier moved, "That the names of four Fellows of the Society should be presented to the Council to be recommended as a Committee to confer with a Committee appointed by the College of Physicians to take such action as will seem to them good to promote the registration of midwives."

Dr. Cullingworth would second Dr. Leith Napier's resolution if the wording were slightly altered. The conference could only be held if the Committee of the Royal College of Physicians desired it. As yet that Committee had not met, and no such desire had been expressed. So that any Committee appointed by this Society to confer with the College of Physician's Committee could only be appointed provisionally, and the resolution ought to make that clear. As the College of Physician's Committee consisted of three general physicians and only one obstetrician, he thought they would be glad to meet some of the Fellows of this Society who knew the subject intimately, and it was on that ground he approved of the resolution.

Dr. Lovell Drage said it was not altogether a desirable thing that they should appoint four people to confer with the College of Physicians, because they would be running the risk of the College of Physicians saying to them that they had

already men qualified to give an unbiassed judgment on the bill, and they did not wish to be biassed by the co-operation of members of a Council which had already expressed itself very strongly in one particular way. If the College of Physicians were to be assisted, they should at all events be assisted as much by one party as by the other, and if it was right to appoint four members who were avowedly in favour of some abstract principle, other people who opposed that principle had equally the right to appoint their representatives, and ask the College to confer with them.

Dr. Leith Napier said his motion was not that four members of the Council should be appointed, but that the Society should recommend four of the Fellows to the Council for election as representing them.

Dr. Champneys hoped that the rider, proposed by Dr. Leith Napier, and seconded by Dr. Cullingworth, would not be adopted by the meeting. The Council had been referred to by some speakers as if it were a self-elected clique of consultants, whereas it contained many general practitioners from the country, as well as the metropolis, and was annually elected by the whole body of Fellows, changes taking place every year. He thought that the Obstetrical Society would be greatly hampered in its action if it were associated with those who probably had little knowledge of the subject. Three out of the four at present on the Committee of the College of Physicians probably knew nothing about the midwives' question until they were asked to serve. That Committee would probably decline their assistance. The motion which they had passed was one of confidence in the executive so far, and to tie their hands in the way now proposed might seriously prejudice the best interests of the bill, or of whatever subsequent bill might be brought forward.

Dr. Lovell Drage said that he took the liberty of reminding Dr. Champneys that the College of Physicians examined and licensed in midwifery, so he presumed that they might be allowed to know something of the subject.

Dr. Champneys reminded Dr. Drage that the College of Physicians did not examine or license midwives.

Dr. Barnes said Dr. Farquharson, who was on the Committee, had certainly given some attention to the matter. Another member of the Committee was Dr. Priestley, who might be supposed to know something about it.

Dr. Napier said, with the exception of Dr. Priestley, there was no gentleman on the Committee of the College who knew the least thing about midwives. He did not fancy any one of these three gentlemen ever saw a midwife in his life.

Dr. Oliver thought they would get a better opinion from four men who practised medicine purely and simply than from

men who were likely to look at the point from a biassed point of view.

Dr. JOHN WILLIAMS urged that it would be very undesirable for the Society to join any other body in a question of this kind.

Dr. CLEVELAND agreed that such a step would only hamper the action of their own Society.

Dr. GRIFFITH hoped that if the Council took any action in the matter they would give the members an early opportunity of knowing what had been done, and not keep it till another annual meeting.

Dr. MACNAUGHTON JONES warmly supported the suggestion just made. It was a matter of the gravest importance that the Fellows of that Society, whose views might be looked upon by the public and the profession as being represented by the Council, but who might not as a body agree with the Council, should be made aware of any important step that was taken, and certainly at shorter intervals of time than had been the case in recent years with regard to the Midwives' Bill. Personally, while believing in the benefit of legislation, he entirely disagreed with the present bill, and he was afraid that the fact of their approving of legislation in the matter might be taken as showing that they were supporting an obnoxious bill. He was entirely in agreement with Dr. Champneys that the Society should act independently of any body whatever. He hardly agreed with the delegation of their rights to any four Fellows or any four members of the Council, believing, as he did, that in a large number of Fellows there was greater security. He hoped that any decision of the Council would be brought before the general body of Fellows before any final action was taken.

Dr. NAPIER said after the discussion that had taken place he was quite willing to withdraw his motion.

The motion was then withdrawn, and the Society adjourned.

MARCH 4TH, 1891.

J. WATT BLACK, M.D., President in the Chair.

Present—50 Fellows and 3 Visitors.

Books were presented by Dr. James Oliver, the St. Bartholomew's Hospital Staff, the Middlesex Hospital Staff, and the American Gynecological Society.

Charles Mortlock, L.R.C.P.Lond., and Arthur Henry Robinson, M.D.Durh. were admitted Fellows of the Society.

Frederick Wells Beville, L.R.C.P.Lond. (East Molesey), and Ernest Dawson, L.R.C.P.Lond. (Hampstead) were declared admitted.

The following gentlemen were elected Fellows of the Society :—Edwin Alfred Barton, L.R.C.P.Lond ; George John Eady, M.D.Brux. ; Arthur Edward Garrett, L.R.C.S. &L.M.Ed. (Rickmansworth) ; William Rivers Pollock, M.B., B.C.Cantab. ; John Alexander Shaw-Mackenzie, M.B.Lond. ; and Philip Dymock Turner, M.D.Lond.

Charles Edmund Adams, M.R.C.S. (West Norwood) was proposed for election.

A CASE OF TUBAL PREGNANCY.

By J. Bland Sutton.

In December, 1890, I saw Mrs. K— in consultation with Dr. J. J. Clarke. The patient gave the following history :

She was twenty-seven years of age and had been married nearly eight years. Six years ago she had had a child, but had never been pregnant since ; menstruation had been regular until the last two months. She had missed two periods. Eight weeks ago she began to suffer from morning sickness, and three weeks later she suddenly experienced severe pains in the lower part of the belly. The pain was so distressing that she took to her bed. After lying in bed two weeks hæmorrhage occurred from the vagina, and this had continued, at short intervals, up to the present date.

When I saw the patient she was pale, complaining of great pain and tenderness in the lower part of the belly, also difficulty during defæcation and micturition. A hard mass could be felt in the hypogastric region immediately above the pubes, and a similar hard mass occupied Douglas' fossa and the right broad ligament. The breasts were not distended. The history of the case suggested very strongly tubal pregnancy, although it was difficult to decide between this accident and a retroflexed gravid uterus. A few days later the patient became much worse, and was admitted into the Middlesex Hospital on December 23rd. Next day I examined her under chloroform, and came to the conclusion that she had a gravid tube, and that this had ruptured. The same day she was seen by several of my colleagues, who agreed with me in the advisability of exploring the abdomen.

On dividing the peritoneum a large quantity of dark

fluid blood was found in the peritoneal cavity. This had escaped from a rent in the right broad ligament. The Fallopian tube on that side was enlarged; this was removed with the ovary and adjacent portion of the broad ligament. The parts were tied with three silk ligatures. The space between the layers of the broad ligament was occupied by blood-clot, and on removing this an embryo of about the twelfth week of gestation was found.

The peritoneal cavity was flushed out with two gallons of water at 105° F., a large drainage-tube inserted, and the wound closed. In suturing the lower angle of the wound the pedicle was secured by means of gut just outside the peritoneum, but remained embedded in the depth of the wound. For the first twelve hours after the operation six ounces of dark fluid blood were removed from the tube; in the second twelve hours three ounces, and in the third twelve hours one ounce. Forty-eight hours after the operation the tube was removed. On the evening of the nineteenth day after operation the temperature rose to 102°. Next morning one of the ligatures came away, and three days later its companion was found in the dressing. Patient left the hospital twenty-eight days after the operation, her convalescence not being interrupted by any untoward symptom.

An examination of the parts reveals some facts of interest. The embryo appears to have lodged at the junction of the outer and middle third of the right Fallopian tube. The abdominal orifice is partially closed. The tube had ruptured on its lower surface and the embryo had escaped between the layers of the mesometrium (broad ligament). The clinical history indicates that this probably occurred about the fifth or sixth week, and the partially closed ostium supports this view. The embryo was not killed by the cataclysm but continued to grow in its new position. The second accession of severe symptoms was due to the secondary rupture of the layers of the mesometrium which allowed the blood to escape into the peritoneal cavity.

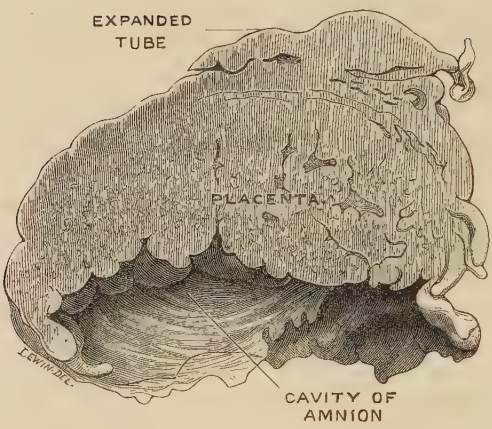


FIG. 1.—The parts of the gestation-sac removed by operation, with the embryo.

FIG. 2.—A transverse section of the gestation-sac, showing the cut surface of the placenta.

In this specimen the placenta was situated above the embryo. Dr. Berry Hart* has pointed out that in the early stages of a tubal pregnancy the placenta commences its development in relation with the mucous membrane of the tube. After rupture its development, if continued, takes place in connective tissue. In some specimens the placenta lies above, and in others below, the embryo. This is of great importance in regard to the subsequent history of the gestation.

The slow displacement of the placenta after rupture leads to grave structural alterations, and frequent extravasations of blood into its substance. This is least marked when the placenta lies in the pelvic connective tissue below the embryo. When the embryo lies below the placenta the latter must be continually displaced upwards as the fœtus increases in size. This persistent displacement gives rise to effusions of blood into the substance of the placenta which gradually convert it into a mass of organising blood-clot and blood-crystals, in which it is difficult to distinguish placental tissue; in fact the placenta is almost destroyed, in many cases it is useless as a respiratory organ, and the death of the fœtus is a direct result. These facts are interesting in too many directions to discuss in this paper. It has been mentioned that in the case, the subject of this paper, the placenta was situated above the embryo. An examination of its structure amply confirms Dr. Hart's views, for the placenta is converted into a mass of organised blood-clot, intermixed, here and there, with placental villi.

AN INTRA-UTERINE SESSILE POLYPUS.

By T. C. Hayes, M.D.

* "The Minute Anatomy of the Placenta in Extra-uterine Gestation," 'Edin. Med. Journal,' October, 1889.

SUB-PERITONEAL PEDUNCULATED FIBROID TUMOUR OF THE UTERUS.

By T. C. Hayes, M.D.

OVARIAN CYST; UTERINE MYOMA AND POLYPUS; DEATH OF PATIENT FROM PNEUMONIA.

By James Crawford, M.D.

Dr. Crawford showed a specimen, removed at a necropsy from a woman aged 36 years, of a left ovarian and of a fibroid tumour. The latter was attached to the posterior surface of the uterus by a short pedicle; the tumour was the size of a racquet ball. There was also an intra-uterine polypus.

He wished to know if the polypus, which was small and situated close to the opening of the left Fallopian tube, was due to hæmorrhage (menorrhagia), or to a blighted ovum, as there seemed to be, amongst authorities, some difference of opinion with regard to this point.

The post-mortem examination was made forty-four hours after death. Body fairly nourished. Rigor mortis in the lower, but not in the upper, extremities; hypostatic congestion marked.

Left ovary had a multilocular ovarian cyst springing from its structure, the size of an orange, containing a gelatinous straw-coloured fluid.

The uterus was congested. Projecting from its posterior surface, near its middle, and attached by a short pedicle, was a fibro-myomatous tumour of an irregular globular form, somewhat larger than a racquet-ball. It was firm in consistence, and covered by peritoneum.

In the posterior part of the uterine cavity, at the fundus near the left tube, a polypoid growth six-eighths of an inch long by two-eighths of an inch broad was attached by a broad pedicle. When first seen it was of a dark colour, like a blood-clot, with the lower portion fibrinous and not discoloured.

Close to this polypus, but situated towards the right Fallopian tube, was a small round tumour embedded in the structure of the mucous membrane, the size of a small shot. It seemed to be firm in consistence, and on floating the uterus in water, a slight wavy film of fine membrane covered the exposed portion of the tumour.

Right ovary normal in appearance, and showed cicatricial remains of old Graafian follicles.

CYST (TUBO-OVARIAN).

By W. C. Grigg, M.D.

PYOSALPINX COMPLICATING PREGNANCY.

By W. C. Grigg, M.D.

DOUBLE PYOSALPINX WITH TUBO-OVARIAN CYSTS.

By W. C. Grigg, M.D.

MATTED APPENDAGES.

By W. C. Grigg, M.D.

INAUGURAL ADDRESS.

PUERPERAL FEVER AND SEPTIC POISONING.

Gentlemen,—I beg to offer you my warmest thanks for the unexpected distinction which you have conferred upon me by raising me to the Presidentship of this great Society. Acutely sensible of my unfitness for the occupation of this chair, I can only cast myself on your indulgence and crave, by anticipation, a lenient treatment of my shortcomings.

The Obstetrical Society of London, founded in 1858, has had a highly prosperous career, and has never been in a more flourishing condition than at present. Its Fellows number nearly 750, and its work continues to possess the highest scientific value.

As it is the duty of your President to give an address on entering office I proceed to do so now, and I propose to speak of puerperal fever and septic poisoning.

The nature of puerperal fever, its relation to zymotic diseases, especially to scarlet fever, and its preventability by asepsis and antiseptics have been fully discussed in the Society.

Medical History of Puerperal Fever.

The medical history of puerperal fever is so curious that it may be not uninteresting to glance at some aspects of that subject before discussing present questions connected with septic intoxication and septic infection. In ancient times puerperal fever was not recognised as such, but was described as suppression or retention of the lochia. What was described was probably sapræmia for the most part.

Puerperal fever was not unfrequently referred to in the seventeenth century. According to Copland the first satisfactory account of it is contained in Hake's 'Dissertatio de Febre Puerperarum,' published at Leyden in 1689. Before that time, however, it had been recognised as a disease distinct from suppression or putrefaction of the lochia. In Willis's work 'De Febribus,' published in 1676, there is a section headed "Puerperarum Febres Putridæ" in which he states that the fever may precede the suppression of the lochia.

The first writer who gave an adjective name to puerperal fever was Richard Morton. In his Πυρετολογια published in 1692 he speaks of it as "Febris Puerpera," and he says it arises from inflammation of the uterus. Edward Strother was the first writer who used the name "Puerperal Fever." This he does in his 'Criticon Febrium' published in 1716, and he says the disease is mostly inflammatory and arises from suppression of the lochia.

Monographs on Puerperal Fever.

The numerous outbreaks of puerperal fever, which occurred in the second half of last century, led to the production of a considerable number of monographs on the subject, especially in this country. The chief of the writers were John Hall, 1755; Thomas Denman, 1768; Nathaniel Hulme, 1772; Charles White, 1773; John Leake, 1773; Thomas Kirkland, 1774; William Butler, 1775; Philip Pitt Walsh, 1787; John Clarke, 1793, and Alexander Gordon, 1795. Some of those monographs possessed great merit, but others of them, and many of even the later writings on puerperal fever, were based to a great extent on conjecture and made but little reference to ascertained fact.

Theories of the Nature of Puerperal Fever.

What must have been the perplexity of a practitioner

of the last, or of the early part of this century, who had to choose his theory of the nature of puerperal fever from a list containing the following:—Erysipelas, putrid fever, putrefactive fever, pituitous fever, bilious fever, gastro-bilious fever, typhus fever, typhoid fever, nervous fever, inflammatory fever, peritoneal fever, hysteritis, uterine phlebitis, lymphangitis, and, lastly, many different diseases such as exist under other circumstances, but modified by the puerperal state. Confusion could scarcely be more complete than this.

Dr. Nathaniel Hulme, who was Physician to the City of London Lying-in Hospital, may be selected in illustration. In his 'Treatise on the Puerperal Fever,' published in 1772, he says that the immediate cause of puerperal fever is an inflammation of the intestines and omentum, and that the predisposing cause is the pressure of the gravid uterus against those parts. Some of the points of his treatment are so quaint that a quotation may be given. He permits the use of small beer, "after qualifying it a little with a toast," but he adds: "The patient must strictly abstain from all caudle, spices, wine, spirituous waters, heating medicines and cordials of every kind, whether under the denomination of comforters, strengtheners, revivers, expellers of wind, promoters of the lochia, or under any other specious title whatever, which the good women are too apt to bestow upon them, and thus ignorantly administer to the destruction of the unhappy patient."

Nothing could better show the obscurity surrounding the subject of puerperal fever than the views of Dr. William Butler, of Derby, who published in 1775, 'An Account of Puerperal Fevers, as they appear in Derbyshire and some of the Counties adjacent.' After saying that "all fevers originate in the stomach and guts," he adds: "This puerperal fever is so far from being of a peculiar nature that it is exactly analogous to the worm fever so fatal to children." "All inflammatory symptoms," he continues, "must be considered as a complication, and

by no means as constituting any part either of the cause or nature of the puerperal remittent fever."

Supposed Causes of Puerperal Fever.

The causes to which puerperal fever was attributed were as various as were the opinions held concerning the nature of the disease. Among these may be mentioned not only suppression, retention, and putrefaction of the lochia, but also retention of secundines, retention or metastasis of milk, severe labour, a tight binder, rising too soon after delivery, mental emotions, errors of diet, use of stimulants, exposure to cold, epidemic influence, miasms, and hospital air.

The theory of hospital air, or nosocomial malaria, as the cause of fatal disease in childbed, appears to have originated with Vesou. From his statement, made to Peu, in 1664, we learn that he had been directed by the President of the Parliament of Paris to ascertain the cause of the great mortality among lying-in women in the Hôtel Dieu of Paris at that time. Vesou opened several dead bodies, and found them full of abscesses. He came to the conclusion that the deaths were attributable to the position of the lying-in ward. It was situated over the one in which the wounded lay, so that the infected air rose to the ward above, and was breathed night and day by the women recently delivered. They perished, Vesou said, in greater or less numbers according as the number of the wounded was greater or less. When the weather was moist the number attacked was much greater than when it was dry. Finally, when the lying-in ward was given up, and one selected underneath that set apart for the wounded, the disease ceased. This led to improvement in the way of ventilation and cleanliness, but it did not lead, as it might have done, to a true conception of the nature of puerperal fever.

There was an English writer in the latter part of the eighteenth century who, in some respects, entertained

opinions of puerperal fever remarkably enlightened for his time. This was Dr. Thomas Kirkland of Ashby, formerly pupil to Smellie. In his 'Treatise on Childbed Fevers,' published in 1774, he declares for the identity of puerperal fever with surgical wound-fevers. When discussing the treatment of puerperal fever he says:—"No one would purge and bleed to cure the colliquative fever arising from the absorption of matter in large wounds, and yet the only difference is that in the puerperal fever the matter absorbed from the uterus, &c., acts with more violence because the blood is commonly thinner and the habit in a more irritable state." Further on in his book he enlarges on the same theme. He also speaks of intra-uterine injections in puerperal fever and of promoting the escape of offensive lochia by postural treatment. After describing a case of puerperal fever with black, putrid lochia, he says:—"I should, indeed, have been glad if the uterus could have been washed out with antiseptic injections, but this, I believe, from a variety of obstacles, is very seldom practised, and I contented myself with desiring the patient to be raised up in bed two or three times a day, which seemed to forward the discharge." He afterwards recommends that in all cases in which the retention of clots in the uterus is suspected, the patient should sit up in bed. It is necessary to add that he did not regard all forms of puerperal fever as of the character above described.

Discovery of the Communicability of Puerperal Fever.

While Kirkland's speculation as to the nature of puerperal fever long remained barren, there was taken, about the time when he wrote, the first great stride in the way of preventing the disease. This was the discovery that puerperal fever is a communicable disease. As the discovery was made by English obstetricians, and as the circumstance is so little alluded to nowadays that it seems

to be nearly forgotten amongst us, it will not be amiss to turn to the subject.

The first writer, who asserts the infectiousness of puerperal fever, is Charles White, F.R.S., and Surgeon to the Manchester Infirmary. In his 'Treatise on the Management of Pregnant and Lying-in Women,' published in 1773, he says that foul air from overcrowding and want of ventilation brings on the fever, and then he makes this statement regarding infection:—"Putrid fevers thus generated are infectious, witness the black assize." He also speaks of the disease as being conveyed in hospitals from one patient to another through the putrid miasmata lodging in the bed-clothes, curtains, and furniture. In a postscript he makes further reference to infection, and meets a possible objection from some patients being fatally attacked and others entirely escaping in the very same ward of an hospital and under apparently similar circumstances, by pointing out that this is no more than we see every day to be the case even in disorders which are the most infectious. White recommends fumigations with sulphur. He draws a comparison between putrefaction of the lochia from the access of air and the putrefaction of pus and the consequent onset of putrid fever when abscesses are opened and foul air admitted. It may have been this remark of White's which suggested to Kirkland his generalisation, or it may have been Van Swieten's comparison of the interior of the uterus after delivery to a large wound. Indeed, Kirkland refers to this comparison.

The idea of contagion had occurred to previous writers, but only to be discarded. Thus, Willis says that this fever "however malignant is not in the least contagious," and Hulme says that it is not an infectious disease "any more than the iliac passion, a pleurisy, a nephritis, or an inflammation in any other part of the body."

Dr. John Leake, Physician to the Westminster Lying-in Hospital, was also to a certain extent a contagionist. His 'Practical Observations on the Child-bed Fever,'

has no date on the title-page, but his Dedication is dated December, 1772, whereas White's is dated July, 1772. He expresses his opinion on infection as follows :—" The child-bed fever when produced by a dis-temperature of the air, like the epidemical dysentery or ulcerous sore-throat, may at last become infectious."

Dr. Philip Pitt Walsh, Physician to the General Lying-in Hospital, says in his 'Practical Observations on the Puerperal Fever,' published in 1787 :—" This disorder is to a certainty infectious." His opinion is of little significance, however, as he held that puerperal fever is merely the " common infectious fever," that is to say, typhus.

Dr. John Clarke, Physician to the General Lying-in Hospital, published his 'Practical Essays on the Management of Pregnancy and Labour, and on the Inflammatory and Febrile Diseases of Lying-in Women,' in 1793. Holding that the immediate cause of puerperal fever would appear to be in many cases the act of parturition he goes on to say :—" Nevertheless it appears to me that there is good reason for believing that when the disease is once generated it is capable of being propagated by infection like malignant fever."

The authors hitherto quoted on the infectiousness of puerperal fever contented themselves with a bare expression of opinion, and adduced no evidence in support of their opinion. It is different in the case of Dr. Alexander Gordon, Physician to the Aberdeen Dispensary, who published in 1795 'A Treatise on the Epidemic of Puerperal Fever as it prevailed in Aberdeen from December, 1789, to March, 1792.' He describes several cases of the disease and the *post-mortem* appearances in them. His *post-mortem* examinations revealed inflammation of the uterus, ovaries, tubes, peritoneum, &c. He gives also a table of seventy-seven cases attended by himself. He justly remarks that " if practitioners had observed more and reasoned less, there would have been little dispute either about the nature or seat of this disease," adding : " there is no argument like matter of fact." The evidence

he adduces on the subject of infection is so striking that a rather lengthy extract may be permitted. He says :— "That the cause of this disease was a specific contagion or infection I have unquestionable proof. When the puerperal fever is frequent and fatal, that is, when it prevails as an epidemic, its cause has been referred to a noxious constitution of the atmosphere. But that the cause of the epidemic puerperal fever under consideration was not owing to a noxious constitution of the atmosphere, I had sufficient evidence, for if it had been owing to that cause it would have seized women in a more promiscuous and indeterminate manner. But this disease seized such women only as were visited or delivered by a practitioner, or taken care of by a nurse, who had previously attended patients affected with the disease. In short, I had evident proofs of its infectious nature, and that the infection was as readily communicated as that of the smallpox or measles, and operated more speedily than any other infection with which I am acquainted. With respect to the physical qualities of the infection I have not been able to make any discovery, but I had evident proofs that every person who had been with a patient in the puerperal fever, became charged with an atmosphere of infection which was communicated to every pregnant woman who happened to come within its sphere." He next gives instances and says that he himself was the means of conveying the infection to a great number of women before he knew that the disease was infectious. Among the instances he gives is that of a midwife who carried the infection to a patient in Nigg, a country parish not far from Aberdeen, from whom it spread through the parish. Another instance is that of a servant who carried the infection from his sister in Aberdeen to his wife in the parish of Fintray, six miles from Aberdeen. The midwife who attended her infected two others in the same parish. The midwives from Aberdeen carried the infection to the Printfield, or cotton-works, two miles from Aberdeen, and infected a great number of lying-in women there, while the women

in the neighbourhood who were delivered by country midwives escaped. The infection was carried by practitioners of midwifery from Aberdeen to Gilcomston and the Hardgate, villages in the suburbs of Aberdeen, while women in the adjacent country, who were delivered by midwives on the spot, escaped. Many additional instances might be cited but these are more than sufficient as a sample.

Gordon, it may be further remarked, gives an admirable account of the relation of puerperal fever to erysipelas, such as could scarcely be improved on at the present day. It is much fuller and more precise and circumstantial than that set out in the last Annual Report of the Registrar-General for England.

Although it may seem to us now that no great sagacity was needed in order to discover the communicability of puerperal fever, we must remember that in those days the disease was supposed to be sufficiently accounted for by the state of the lochia, or of the milk, or of the atmosphere. And if proof of the difficulty of making the discovery were required it could be found in the opposition offered by many to the new doctrine. No more striking illustration of this opposition could be given than the belief of Meigs as lately as 1851, that when forty-five cases of puerperal fever occurred in the practice of one man, while none of the patients of the other practitioners in the same place were attacked, no other explanation was possible than a dispensation of God's providence. In spite of opposition, a belief in the infectiousness of puerperal fever gradually spread, and before long was widely prevalent, so that outbreaks were frequently averted or checked through the measures taken in consequence of that belief.

No discovery in relation to puerperal fever approaching this in importance was made until 1847 when Semmelweis traced the infection to the introduction of decomposing animal matter into the genital passages by the attendant.

Even the investigations of Semmelweis and the corroboration and extension of his views by himself and many other observers failed to overcome the incredulity of

some. It is only the revelations of bacteriology and the proved prophylactic efficacy of antiseptics which have at length set the question at rest.

Relation of Microbes to Puerperal Disease.

Since the remarkable discussion on puerperal fever in this Society, in 1875, much light has been shed on puerperal disease by bacteriology. The study of the most minute organisms may have an air of transcendentalism about it, but, all the same, it is one of the most practical subjects which could engage our attention.

For the bacteriological facts which I am about to adduce I am indebted to many writers on the subject.

Nature and Distribution of Microbes.

In order to discuss fully the relation of microbes to puerperal diseases it would be necessary first to give an account of their numerous varieties and of the part which they play in the economy of nature generally. Even an outline of this subject would, however, not only take me far beyond my depth but also entirely exhaust your patience. The mere classification of microbes is now an extensive one, with its groups or orders, genera, and species. They are all regarded as minute vegetable cells destitute of nuclei. Wherever there is putrefaction they are present in vast numbers. They are found in the pus of abscesses, and of open wounds and ulcers. They swarm in the alimentary canal. Various species may always be found on the skin and between the teeth, especially in uncleanly persons. They are found in dead tissues within the living body, and in septicæmia and in several specific diseases.

They abound in the earth and in the waters. In the surface soil they perform most important functions. They serve to oxidise the organic matter and ammonium-compounds so as to give rise to nitric acid, and thus produce

nitrates which are taken up by the roots of plants. They are even said by Berthelot to have the power of fixing the atmospheric nitrogen in some soils, thus giving rise to complex organic compounds similar to the albuminoids.

They require moisture for their vital activity, but many of them can be dried without losing their vitality, and may be wafted by the air from one place to another, and even carried to great distances by the wind. Many bacilli produce spores which not only survive drying but also survive the temperature of boiling or of freezing water and the action of chemical reagents.

Microbes have been described as ubiquitous, but this is scarcely correct. They are not found in the atmosphere above an altitude of 2000 to 4000 metres, and they are not found at sea beyond 120 miles from land although the waters of the ocean teem with them. They seem to be absent or scarce in the atmosphere of some places, as for example parts of California and of South America where the flesh of animals freely exposed shows no tendency to putrefy, and simply dries up. Curiously enough the air of sewers is, as a rule, extremely free from microbes, although the sewage itself contains them in myriads.

Putrefactive Microbes and Sapræmia.

The great majority of the microbes existing in the soil, water, and air, are incapable of living in the blood or tissues of the healthy human body, and are therefore called non-pathogenic. As obstetricians, we are concerned with the non-pathogenic as well as with the pathogenic varieties, for we see in sapræmia the effects of the absorption of chemical products resulting from the action of mere putrefactive bacteria.

It is generally agreed amongst experimenters that putrefaction cannot take place without the action of microbes. Organic matter may be preserved indefinitely without undergoing putrefaction, if sterilised and kept

free from contamination with micro-organisms. A sample of urine may thus be preserved for any length of time.

Brieger has isolated from the human cadaver and from putrid meat, fish, and cheese, various ptomaïnes including cadaverin, putrescin, saprin, peptotoxin, and other poisonous compounds varying in their toxic properties. Many observers have succeeded in causing rigors, fever, vomiting, diarrhœa, and other symptoms followed by death by injecting the products of putrefaction, completely freed from microbes. The injection of smaller quantities produces less severe symptoms. After death congestions and hæmorrhages are found. This is analogous to what we find when substances putrefy in the uterus, *post partum*, and absorption takes place.

A few years ago some experiments were made by Ahlfeld which have an important bearing on the subject of sapræmia occurring after parturition. He found that in pregnancy, labour and the puerperium, the absorbent powers of the uterus incomparably exceed those of the vagina. The inner surface of the uterus possessed its greatest absorbent power on the third, fourth, fifth, and sixth days after labour. After the sixth day it diminished unless the uterus was then unduly large. A contracted state of the uterus hindered, and a relaxed state of the uterus favoured, absorption. He introduced solutions of what he calls salicyl into the uterus, and he afterwards found salicylic acid in the urine.

Edmund Falk has recently found the same difference in the unimpregnated state. His experiments showed that the endometrium possesses remarkable absorbent powers while the vagina has very little and the mucous membrane of the cervix scarcely any. The substances he experimented with were potassium iodide and iodoform, chiefly. He found iodine in the urine afterwards. He attributes the feebleness of absorption by the vagina to the fact that it is skin and not mucous membrane. The readiness with which putrefactive products are absorbed from the cavity of the puerperal uterus is illustrated by Ahlfeld's

experiments. From those of Falk it appears that the great absorptive power of the puerperal uterus exists apart from the denudation of its inner surface at parturition.

The Microbes of Puerperal Fever.

It has not yet been ascertained to what cause is due the great diversity in the anatomical changes produced by puerperal fever in different cases and in different outbreaks. In all cases of puerperal fever microbes of the coccus order are to be found, and most frequently of all the Streptococcus pyogenes. It has been found in puerperal infection by Fränkel, Baumgarten, Cushing, and others. It was found by Czerniéwski in all the cases of puerperal fever which he examined. It causes an erysipelas-like inflammation. The Staphylococcus pyogenes is often found in puerperal fever. It is the microbe most frequently found associated with the formation of pus in man. It is easily inoculable, and it strongly resists the action of antiseptics. Doléris, who found bacilli and micrococci in puerperal fever, considers that the bacilli are the cause of acute forms of septicæmia, and the micrococci the cause of pus-formation. When, as commonly happens, different kinds of micro-organisms are present together in a case of puerperal fever, each may produce effects peculiar to itself, and each may also interfere with the action of the others. The manner of infection, too, whether by surface inoculation, injection into the tissues, or direct injection into the veins, is found to greatly modify the result in experiments on animals.

A cognate question, to which no answer can yet be given, is what conditions determine a local or a general infection. The same experiment will result in a merely local inflammation and abscess in one animal, while it will produce general infection in another animal of the same species. This problem confronts us in all cases of puerperal sepsis.

Self-Infection.

When Semmelweis made his great discovery that puerperal fever generally arises from the deposit of a poison in the genital canal by the finger of the attendant, he believed that in exceptional cases the disease is produced by the spontaneous decomposition of substances lying in the passages. This was simply the old idea of putrefaction of the lochia or secundines. Since it has been understood that puerperal fever is always produced by microbes which come from outside, the doctrine of the autogenetic origin of it has been virtually abandoned. Of late, however, the doctrine has been revived in a modified form. It is now the belief of many that microbes present in the vagina before parturition, without having been introduced by the attendant, may be the cause of puerperal fever. The term self-infection is employed to express this idea. As in all cases the microbes must have come from the outside originally, the term is singularly ill-chosen. There are two theories of self-infection. The first is that pathogenic microbes may inhabit the vagina before parturition, independently altogether of the manipulations of the attendant, and may set up puerperal fever. The other theory is that puerperal fever may be caused by the microbes constantly found in the vagina, which are naturally innocent, but are capable of becoming pathogenic under favouring circumstances such as exist in the genital canal after delivery.

Much still remains to be ascertained respecting the life-history and common habitats of the pathogenic microbes. They are known to be generally present wherever animal substances are putrefying as well as in septicæmia, in zymotic diseases, in the pus of abscesses and of ulcers, and in various morbid products. The saliva of healthy persons was found by Netter to contain the Staphylococcus pyogenes in 5½ per cent., and the Bacillus pneumoniæ in many cases. Brieger's bacillus is found in fæces as well as in putrefying mixtures, and while it causes no result in

guinea-pigs if introduced by the mouth or anus, it causes septicæmia if injected subcutaneously. The Bacillus saprogenes II of Rosenbach is found in the secretions of foul feet, and causes suppuration if introduced by inoculation. Numerous pathogenic microbes exist in the earth and in the waters. Micrococci, bacilli, and other pathogenic microbes are found in the atmosphere, varying in abundance in different places. The air of hospitals and of sick-rooms, and particularly of cholera-wards, is found to be especially rich in them. The Staphylococcus pyogenes and the Streptococcus pyogenes have been found floating in the air of hospitals.

Griffiths has found tubercle-bacilli in the atmosphere of a laboratory in which experiments were being made with phthisical sputum. Klein has found that the bacillus of swine-fever is carried through the air from pig to pig. The contagion of other diseases is known to be carried in the same way. Further investigation may show the presence of many pathogenic microbes floating in the air. The far greater abundance of the non-pathogenic forms and the consequent difficulty of distinguishing the pathogenic forms account for the fact that comparatively little progress has as yet been made in this branch of inquiry.

There are thus numerous sources from which pathogenic microbes might find their way into the vagina apart from delivery.

Microbes in the Lochia.

Many observations have been made on the lochia with the object of throwing light on the question of self-infection.

Orth could find no micro-organisms of any kind in the lochia of the uterine cavity or of the upper part of the vagina. Goenner also could find no micro-organisms in the uteri of lying-in women. Döderlein found no microbes of any kind in the uterine lochia, while he found many different kinds in the vaginal lochia. Von Ott found no

microbes in the uterus or in the upper part of the vagina in healthy lying-in women. Thomen found no microbes in the healthy uterine lochia of four women, while in three others he found various micro-organisms which included streptococci in two cases. The microbes were more abundant in the lower than in the upper part of the vagina. They were much more numerous on the first day of childbed than immediately after labour.

Czerniéwski examined the uterine lochia of eighty-seven perfectly healthy women, and found no microbes of any sort except in one case in which there were streptococci and in two cases in which there were the Bacillus subtilis and sarcinæ. He examined the uterine lochia of seventy-seven women suffering from slight illness and found streptococci in forty-nine, staphylococci in two, and non-pathogenic forms in a few others. He examined the uterine lochia in ten women who were suffering from severe illness and found streptococci in all.

The foregoing observations on the contents of the genital passages during the puerperium correspond with the observations of Winter and others in the non-puerperal state, the cavity of the uterus generally containing no microbes of any kind, while numerous microbes are found in the secretions of the cervix and of the vagina.

Before proceeding further it may be noted that the general absence of microbes from the uterine lochia and their presence in the vaginal lochia is highly significant. It explains why clots or portions of secundines often remain for a long time in the cavity of the uterus without undergoing decomposition while they putrefy readily in the vagina.

The problem has been attacked from the experimental side. D'Espine and Karewski found that even as early as the third day healthy lochia were poisonous to a rabbit. They further found that the lochia became more and more poisonous the later in the puerperium they were taken. Czerniéwski found that the uterine lochia of healthy women injected hypodermically into animals produced no

injurious effects. The uterine lochia of women suffering from fever contained streptococci and caused suppuration when injected hypodermically into animals.

In connection with the question of the bacteriological condition of the lochia that of the menstrual discharge merits further investigation than it has received. Thomen finds the number of bacteria much greater on the first day of menstruation than before menstruation begins. Dr. William Taylor of Edinburgh believes that he can trace certain cases of puerperal fever to the want of proper cleanliness on the part of nurses who happened to be menstruating at the time.

Although so much stress has been laid by various writers on the condition of the lochia as bearing on the question of self-infection, the connection between the two subjects is but remote. This cardinal objection lies against all conclusions in favour of self-infection based on the lochia, that the pathogenic microbes present may have been introduced at the time of parturition or subsequently. The observations above referred to have, however, a great intrinsic interest of their own. It is for that reason chiefly that they are mentioned here. In addition to other points of interest they furnish the basis of a practical conclusion that danger may arise from driving the vaginal lochia into the uterus by syringing, or from freshening the raw surfaces in the cervix, vagina, or vulva, by the rough use of the douche-tube or by other means. This accords with clinical observation.

Pathogenic Microbes in the Genital Canal before Parturition.

More important in relation to the question of self-infection is the presence of pathogenic microbes in the genital canal previously to parturition.

Thomen examined the uterus in seven cases of pregnancy, and in none did he find staphylococci or streptococci. Döderlein found in the vagina of a pregnant woman, not previously examined, the Staphylococcus pyogenes aureus.

Goenner found only once the Streptococcus pyogenes albus in the vaginal secretions of a pregnant woman. Winter could find streptococci in the vaginal secretions of only three pregnant women. P. Steffeck has lately made an extensive series of observations on, and experiments with, the vaginal secretions of pregnant women. His cases numbered twenty-nine. In twenty-three of them no previous vaginal examination had been made during the pregnancy, and in some of these none had ever been made. In cultivations of the vaginal secretions of ten of these twenty-three cases he found the Staphylococcus pyogenes albus or aureus, or both—chiefly the albus—and in almost all of them bacilli also. Abscesses were produced in animals by subcutaneous injections of the vaginal secretions of every one of these ten cases, and in all of the abscesses the Staphylococcus pyogenes was found. In several of the animals there was general infection and death. In the remaining six cases there had been previous vaginal examination during the pregnancy. In one the Staphylococcus pyogenes albus was found, and in one the Staphylococcus aureus. Abscesses containing these respective staphylococci were produced by subcutaneous injection in animals. In a third case bacilli only were found, but subcutaneous injection of the vaginal secretions produced an abscess in which the Staphylococcus pyogenes albus was found. In the other three cases there were no pathogenic microbes, and no result followed on subcutaneous injection.

Steffeck performed control-experiments by injecting subcutaneously the sterilised vaginal secretions of ten pregnant women into rabbits, and in all with absolutely negative results, except that in one rabbit there was an induration of the skin as large as a hazel-nut at the site of injection.

These observations of Steffeck are at variance with those of other investigators, and require to be confirmed before we can believe that the very microbes which cause puerperal fever are already present before parturition in

the vaginal secretions of nearly a half of all pregnant women. Knowing as we do the all but unerring certainty with which puerperal fever can be induced by examination during labour with a contaminated finger, it is impossible to accept Steffeck's conclusions in the meantime.

Experimental Introduction of Pathogenic Microbes into the Vagina or Uterus before Parturition.

The effect of introducing substances containing pathogenic microbes into the vagina of pregnant rabbits was tested by Hausmann. He found that serum from the body of a person who had not died of septicæmia did not produce fatal results when introduced into the vagina of gravid rabbits, while pus from the abdomen of a woman who had died of puerperal fever proved rapidly fatal when similarly injected in the second half of pregnancy. It had no effect when injected into the vagina of rabbits only two weeks pregnant.

D'Espine, Strauss, Sanchez-Toledo, Hausmann, and others have introduced liquids containing virulent microbes into the uteri of animals during pregnancy and after parturition. The results have been so various, however, and the anatomical conditions are so different from those existing in the human uterus, that no conclusions as to self-infection in women can be safely drawn from these experiments.

Possibility of Innocent Microbes becoming Virulent.

As to the possibility of innocent microbes assuming virulent properties under special conditions, the opinions of micro-biologists are somewhat divided. Klein says that three distinct micro-organisms ordinarily innocuous have been declared after experimental proof to be capable, when growing under certain extraordinary conditions, of assuming pathogenic properties. These are first the common Bacillus subtilis of hay-infusion, a widely distributed

putrefactive microbe, said to be convertible into the bacillus of anthrax; secondly the jequirity bacillus, said to be transformable into a virulent form which causes infectious purulent conjunctivitis; and thirdly the spores of a common aspergillus or mould, said to be capable of becoming pathogenic if cultivated at certain temperatures in alkaline media. Strong evidence from experiment is given by Klein in support of his opinion that the first two are incapable of becoming pathogenic, and that the third possesses *ab initio* and apart from special cultivation the power of producing in the rabbit a general mycosis. Some kinds of aspergillus do not possess this character, and cannot acquire it under any conditions. Koch had previously arrived at the conclusion that micro-organisms cannot be made to assume pathogenic power if they do not originally possess it.

There is another point of view from which the question may be looked at. Are there conditions of health in which microbes, ordinarily incapable of doing so, can live and flourish in the tissues? In other words, granting that cultivation cannot convert an innocent into a virulent microbe, is it possible that diseased or injured tissues may be incapable of resisting the attacks of microbes against which healthy tissues are proof? There is evidence that it is so. For example, Wyssokowitsch succeeded in enabling bacteria which are not pathogenic under ordinary circumstances, to multiply in the living body by artificially lowering its vitality. The means he employed were keeping the animals in a temperature so high as to injure their health, the introduction of mineral poisons, or the introduction of ptomaïnes resulting from bacterial action. The introduction of ptomaïnes proved the most effectual means. Rabbits previously poisoned by the ptomaïnes easily fell a prey to microbes which they perfectly resist when in health. Wyssokowitsch thus found that Finkler's Spirillum, the Micrococcus tetragenus, the pneumonia-bacillus and other bacteria not in the least injurious to healthy rabbits can multiply to a prodigious extent in

rabbits artificially weakened. Flügge states that while healthy rabbits show no apparent effects from even the intravenous injection of considerable numbers of the Streptococcus pyogenes, rabbits artificially weakened, as by the injection of toxic substances, die from marked growth of the micrococci. So also it is found that frogs, which when healthy remain unaffected by anthrax-bacilli, succumb to the disease if kept in a high temperature after inoculation. The effect of lowered vitality is shown also in such diseases as smallpox, typhoid fever and pyæmia, in which micrococci are found which have no causal relation to the disease. Again, in dysentery quantities of bacilli are found in the mesenteric glands and in the liver. Klein found the capillaries distended and plugged with masses of putrefactive micrococci in necrotic patches in the livers of mice dead of swine-plague. The microbes, he thinks, had probably migrated from the intestine.

Special Liability of Lying-in Women to Septicæmia.

There is as yet no evidence to show whether there is ever such a lowering of vitality in lying-in women through septicæmia, loss of blood or otherwise, as allows of the occurrence of puerperal fever from the invasion of microbes which are innocuous to healthy persons. However this may be, a most instructive experiment was performed by Rosenbach which bears on the question of the occurrence of puerperal fever. After breaking the hind leg of a rabbit he inoculated the animal in the ear with the Staphylococcus pyogenes. The result was an abundant growth of staphylococcus at the site of the fracture, while the site of the inoculation remained unaffected. This not only shows the greater susceptibility of damaged than of sound tissues, but it may also help to account for the special liability of parturient and lying-in women to septicæmia. The contusion and laceration of the soft parts concerned in parturition probably makes them a more suitable nidus for the microbes than healthy tissues are.

General Conclusions as to Self-Infection.

From the foregoing it appears that no proof has yet been given that non-pathogenic microbes are, under any circumstances, capable of becoming virulent, so that they can multiply in healthy tissues. On the other hand, the investigations of microbiologists lend some support to the doctrine of so-called self-infection. As against the frequency of self-infection, however, we must set the important clinical fact that puerperal fever is scarcely ever seen in cases in which there has been no obstetric examination. When, therefore, no purulent or other unhealthy vaginal discharges exist before delivery, it may probably be taken for granted that the risk of self-infection is but slight. The practical bearings of this consideration need not be here set forth.

Puerperal Mastitis.

Another puerperal affection with which microbes are associated is mastitis. While mastitis has been found in a few cases of puerperal fever, it is much more frequent apart from that disease. Winckel estimates that almost 6 *per cent.* of all nursing women are attacked.

It has long been observed that puerperal mastitis is generally preceded by sore nipples, and that the inflamed acini correspond in situation with the excoriations on the nipples.

Since Kaltenbach, in 1883, advanced the hypothesis that puerperal mastitis results from septic infection of nipple-erosions a considerable amount of evidence has been accumulated which supports his view.

In 1884 E. Bumm discovered, in the pus of a puerperal mammary abscess, a micrococcus, with pure cultures of which he succeeded in producing abscesses in himself and in two other persons. He found the micrococcus in

the pus of these abscesses. He afterwards concluded that the micrococcus was the Staphylococcus pyogenes aureus. This staphylococcus has since been found in puerperal mammary abscesses by various observers including Bumm himself, Passet and Cohn. The Streptococcus pyogenes has also been found in such abscesses by Bumm, Ahlfeld and others. In fact all the known pyogenic microbes have now been found in puerperal mammary abscesses.

The question whether there is a causal connection between these pyogenic microbes and the pus-formation has been generally answered in the affirmative by investigators. It is difficult to arrive at any other conclusion. It seems to be established that suppuration does not arise spontaneously without the action of pyogenic microbes. It is found extremely difficult to induce it artificially by the hypodermic injection of irritating mechanical or chemical substances such as mercury and turpentine. On the other hand suppuration, which may prove local or general, can be readily induced by the hypodermic injection of pyogenic microbes. It can also be induced with great certainty by the hypodermic injection of the sterilised products of microbial action.

Those instances of puerperal mastitis in which no breach of surface can be discovered may have arisen, nevertheless, from abrasions or fissures too minute to be discovered. Also it is well known that by the time suppuration has occurred in the mamma, previously existing excoriations of the nipples have often healed. In such cases the microbes probably entered through the breach of surface. It is also possible that the microbes may find an entrance by the orifices of the lactiferous ducts. It is not unusual to find microbes in the milk even when no excoriations have been found about the nipples. Bumm and others have discovered pyogenic microbes in the fresh drawn milk and also in the ducts themselves. The familiar fact that, even without any discoverable excoriations on the nipples, mastitis is apt to come on and to proceed to suppuration in women who begin suckling, but

give it up for one reason or another, while mastitis is exceedingly rare in women who do not attempt suckling at all may be thus explained. The stagnant milk or the unemptied milk-ducts may form a specially suitable nidus for the microbes. The act of sucking will have so opened the duct-orifices that microbes might easily enter.

An experiment performed by Garré is relevant to this question. He rubbed on the sound skin of his forearm a pure cultivation of Streptococcus pyogenes aureus from a case of osteomyelitis, and thereby produced pustules round the roots of a number of the hairs. This was followed by the formation of an enormous furuncle with necrotic portions of connective tissue. In the pus of the furuncle and in that of the pustules, the Staphylococcus pyogenes aureus was found abundantly without contamination with any other organisms. He thinks that in furuncle the infection finds its way through the ducts of the cutaneous glands.

The possibility of infection through the channel of the lactiferous ducts is one which might be tested experimentally in suckling animals. The bearing of the bacteriological question on the prevention of mastitis is obvious.

Sepsis of the New-born Child.

The interest of obstetricians in septic infection is not limited to the pregnant and lying-in woman. The new-born child is also liable to be affected. It had been repeatedly observed in former outbreaks of puerperal fever that many of the children were taken ill of erysipelas and died. In more recent times new-born children have frequently been found to succumb to septicæmia. Wounds or abrasions on the surface of the child, sores on the umbilicus, and fissures or sores in the mouth, all render infection possible. Of ten children who died of sepsis during an outbreak of puerperal fever, Créde found sores in the mouth in nine. Of thirty-six children dead of septicæmia, Runge found umbilical septic arteritis in thirty. Karlinski found

the Staphylococcus cereus aureus, the Staphylococcus cereus albus, and the Staphylococcus cereus flavus in the blood and intestinal contents of a child whose mother suffered from puerperal erysipelas and had the same micro-organisms in her milk. It may have been by the milk that the child was infected. The case is suggestive.

Another possible source of infection of the child is the saliva of the mother. The Coccus salivarius septicus has been found in the saliva of a woman suffering from puerperal fever. It caused fatal septicæmia in rabbits, guinea-pigs, and mice. This is an addition to the more obvious sources of infection.

The bearing on prophylaxis is again too self-evident to require more than a bare mention.

The bacillus of anthrax injected under the skin of pregnant guinea-pigs has been found to pass readily into the fœtuses and to destroy their life *in utero*. It is thus possible to account for the origin of septicæmia in children reported to have been born suffering from that affection. Infection of the fœtus *in utero* with smallpox, syphilis, and other communicable diseases is analogous.

We have now looked at various problems connected with septic poisoning. As it has been in other branches of science, so it is with us in this. A discovery which explains some previous difficulty only serves to open up the way to new fields of research. Our predecessors had their difficulties and perplexities in studying puerperal fever. We also have ours. We may seem to have reduced the whole problem to the greatest simplicity by invoking septic infection. But this is only to find that we have thereby involved ourselves in new problems which are now pressing for solution.

Possible Cure of Puerperal Fever.

Since the time when Doulcet, who regarded the disease as a bilious fever, received a reward from the French

Government for curing puerperal fever by the use of ipecacuan as an emetic, many supposed remedies have been brought forward, but it cannot be said that any of them has proved conspicuously successful.

It may be that we shall never find means capable of destroying the microbes of puerperal fever after they have gained admission into the blood and tissues, without at the same time destroying or damaging the patient. There are, however, various considerations which show that the prospect is not so hopeless as it may seem. The fact that patients can and do recover from puerperal fever, as they do also from surgical wound-fevers, indicates the presence of some power or process in the blood and tissues by which the multiplication of pathogenic microbes can be checked and the injuries done by them repaired. The fact of recovery from zymotic diseases is evidence of a similar kind.

From the researches of Wyssokowitsch it appears that the healthy kidneys have no power of excreting pathogenic or saprophytic micro-organisms. An interesting observation has been made by Bourget, however, which indicates one of the means at nature's disposal for ridding herself of the toxic agents which cause the morbid phenomena of puerperal fever and of sapræmia. He succeeded in isolating several poisonous bases from the viscera of a woman who had died of puerperal fever, and he found the same bases in the urine of women suffering from puerperal fever. This excretory power of the kidneys is of great importance, as it is proved that the inflammatory and destructive processes which characterise puerperal fever and sapræmia are caused by the ptomaïnes and leucomaïnes which result from the action of the microbes. The pathogenic microbes themselves produce no injurious effects, even when introduced in great numbers directly into the blood, if previously killed and separated from the poisonous substances with which they are associated.

In discussing the probability of our becoming capable of dealing successfully with pathogenic microbes in the

blood and tissues, it is necessary to turn to the subject of the natural immunity possessed by some animals from the attacks of microbes which are pathogenic to other animals.

Natural Immunity.

This natural immunity is found, for example, in rats, dogs, and guinea-pigs in respect of the Bacterium septicæmiæ of Koch which produces a rapidly fatal septicæmia in mice, rabbits, pigeons, and sparrows. The bacillus if swine-fever produces that disease in rabbits and in mice, but cannot do so in man, carnivorous animals, guinea-pigs or birds. The bacillus of anthrax causes the disease in man and in herbivorous animals, but not in carnivorous animals. The Streptococcus pyogenes often proves fatal to mice, but when inoculated into healthy rabbits causes no appreciable effects. The Bacillus salivarius septicus, found in the sputum of healthy as well as in that of unhealthy persons, causes septicæmia in mice and rabbits, but is innocuous to guinea-pigs. The bacterium of Davaine's septicæmia is fatal to rabbits and to guinea-pigs, while it does not affect birds. The most striking instance of all is afforded by the bacillus of mouse-septicæmia which invariably kills house mice while it has no effect upon field mice.

When we find that different animals, in some cases closely allied, behave so differently towards pathogenic microbes, we may not unreasonably entertain the hope of being able to bring about artificially the conditions which confer immunity.

On what this immunity depends is not yet ascertained. The blood must possess a power of destroying micro-organisms, for, as Klein says, many of these must be constantly entering it from the chyle. The alimentary canal swarms with putrefactive microbes which are much smaller than the chyle-globules and must, therefore, easily enter the lacteals. In fact, Bizzozero and Klein have found

crowds of bacilli in the lymphatic tissue of Peyer's glands in perfectly healthy rabbits. Yet the blood of healthy persons contains no micro-organisms whatever. No matter what the conditions may be on which immunity depends, they exist in the living animal only. Thus Klein found that while the pig is insusceptible of anthrax, the tissues of a dead pig formed as good nourishment for the Bacillus anthracis as those of herbivorous animals which are highly susceptible of the disease.

The view advanced by Metschnikoff in 1885, that the leucocytes have the power of devouring living pathogenic microbes, is not generally accepted by microbiologists. Klein considers it contrary to the elementary fact that however small the number of anthrax-bacilli or of tubercle-bacilli introduced into the blood of a susceptible animal, infection sets in with certainty. Klein also thinks it would be absurd to say that in a sheep which has passed through a mild attack of anthrax, and has thus become insusceptible of a second attack, the leucocytes have so altered as to have become endowed with the power of swallowing up and destroying anthrax-bacilli.

According to the observations of Wyssokowitsch, bacteria, when introduced into the blood of warm-blooded animals, become fixed in the capillaries of various organs, especially of those in which the current is slow. They adhere to the walls of the capillaries, or are taken into the interior of the endothelial cells. According as the bacteria or the endothelial cells gain the victory, the bacteria perish, or they multiply in the endothelial cells and lead to destruction of the cells, so that the bacteria multiply and spread. According to the result, the microbe is a pathogenic or a non-pathogenic one for the animal experimented on.

Acquired Immunity.

A theory of acquired immunity, known as the exhaustion-theory, is founded on the assumption that certain

elements in the blood and tissues required for the nutrition of the microbes, may be so used up temporarily or permanently as to render the person or animal unfit for the further multiplication of the micro-organisms. Crookshank points out that this theory fails to explain natural immunity. It is also inconsistent with Klein's observation on the tissues of the pig as a pabulum for anthrax-bacilli.

Next there is the so-called antidote-theory of acquired immunity, that the microbes produce chemical substances, which prevent a second invasion by the same organisms. Wernich and others have shown that along with the poisonous alkaloids or ptomaïnes, leucin, tyrosin, sulphuretted hydrogen, carbonic acid, &c., formed by the action of microbes on albumen, there are also produced various alkaloids belonging to the aromatic series, such as indol, skatol, phenol, and others, which exert a most injurious influence on the life of the microbes themselves. It is believed that when a sufficient amount of these aromatic alkaloids is produced, the multiplication of the microbes is arrested. If this theory be correct, we may hope that when the chemistry of microbial action has been further investigated, we may find a means of curing puerperal fever, provided we use our alkaloids before irreparable anatomical changes have been produced by the disease.

Chemical Antidotes.

It is not impossible that other chemical substances may be found which will kill the microbes in the tissues without injuring the patient. The selective affinity of certain aniline-dyes and of other chemical compounds for special micro-organisms, shows that experiments might be made in this direction with some prospect of success.

Mutual Antagonism of different Microbes.

Finally, it is found that some micro-organisms wage war upon, and destroy, other micro-organisms. A few years

ago Professor Cantani, of Naples, taking advantage of this fact, introduced pure cultures of the Bacterium termo—one of the commonest putrefactive microbes—into the respiratory passages of a patient suffering from phthisis. After a month's treatment the tubercle-bacilli disappeared from the sputum, and the patient's condition greatly improved. As we hear nothing of this remedy now, however, and as Cantani is now engaged in treating phthisis with Koch's fluid, we may infer that the bacillus has refused to succumb to the bacterium.

Dr. Babtchinsky has lately produced evidence that the microbes of diphtheria and of erysipelas are antagonistic to each other. In twelve cases of severe diphtheria he inoculated the patients with pure cultures of the micrococcus of erysipelas, and in each case found the patient recover. Griffiths says that at the present time test-experiments are being made at the Pasteur Institute in Paris.

From all this it would appear, then, that through an extended study of microbiology and of organic chemistry we may hope to become possessed of means which will destroy pathogenic microbes in the body without damaging the patient, and thus cure puerperal fever. May it fall to the lot of some Fellow of this Society to make the grand discovery.

It was moved by Dr. Playfair, seconded by Dr. Champneys and unanimously agreed "That the thanks of the Society be given to Dr. Watt Black for the Inaugural Address, and that the Address be published in the 'Transactions.'"

APRIL 1st, 1891.

J. Watt Black, M.D., President, in the Chair.

Present—51 Fellows and 6 Visitors.

Books were presented by Sir T. Spencer Wells, Bart., Messrs. Wright and Co., The Medical Society of London, and La Société Obstétricale et Gynécologique de Paris.

Philip D. Turner, M.D.Lond., was admitted a Fellow of the Society.

Arthur Edward Garrett, L.R.C.S.&L.M.Edin. (Rickmansworth), was declared admitted.

The following gentleman was elected a Fellow of the Society :—Charles Edmund Adams, M.R.C.S. (West Norwood).

Report of Committee on Dr. Hayes' Specimen of Pyosalpinx (p. 4).

On the right side, the length of the tube removed was three and three quarter inches, width of tube (unopened) three quarters of an inch. Wall thickened, distension slightly unequal, attached by meso-salpinx, and at last outer inch and a half closely adherent to a thick-walled cyst, globular in shape, three and three quarter inches in diameter when empty, the outer wall of cyst covered with

shreds of old adhesions. The cyst has been laid open and is empty. On its inner surface is an opening, oblique, so as to form a valve, a quarter inch in diameter, communicating directly with the interior of the Fallopian tube. Over a patch, an inch and a half in diameter, surrounding the orifice of the tube, is a rough area where the inner lining membrane of the cyst is lost, apparently by ulceration. The rest of the lining membrane is smooth, excepting a small patch of the size of a shilling, which is rough like the area just described, but to a less degree. On laying open the tube the muscular coat was found thickened, the mucous membrane extensively ulcerated; over the uterine two inches of the tubes it had entirely disappeared. We consider that the specimen is a tubo-ovarian cyst, apparently commencing in suppurative salpingitis. On the left side the tube was in a similar condition, two and three quarter inches long, walls thickened. Closely adherent to it is a small cyst two inches in diameter, with rough internal surface. There is no proof in the present state of the specimen that the tube and ovary communicated. The mucous membrane is thickened, without distinct ulceration. The muscular wall is very thick.

C. J. Cullingworth.
Thos. C. Hayes.
Alban Doran.

SPONDYLOLISTHESIS IN A GIRL AGED SIXTEEN.

By James H. Targett, M.S. (Introduced by Alban Doran.)

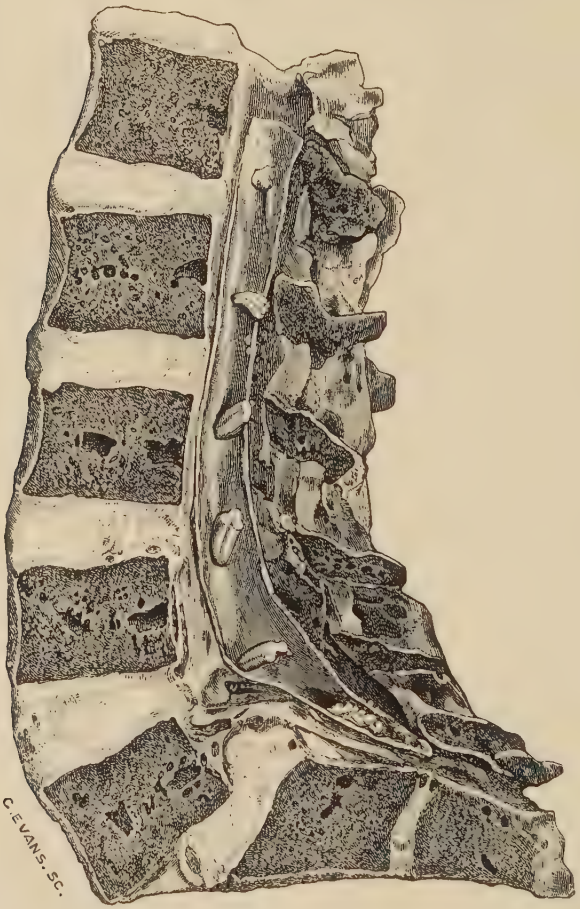
The specimen which I have the honour of exhibiting to the Society through the kindness of Mr. Doran, was found accidentally in the course of an ordinary post-mortem examination, as the spine was being opened in

front in order to remove the spinal cord. Many important details were unfortunately not observed, more especially as regards the measurements of the pelvis, but this much may be definitely stated, that there was no obvious deformity of the pelvic cavity beyond that which forms the subject of this communication.

Clinical history.—Sarah B—, aged 16, was admitted into a hospital for chronic tetanus. She had always lived in the country, but had only done housework at her own home, and there was no history of privation. Her father and mother were alive and healthy, and she had five brothers and two sisters living. Four children of the family were dead. She had had no illness whatever before that for which she was admitted, and had always been very strong and healthy, fat and well developed for her age. Menstruation began at fourteen, and was regular until seven weeks before admission. About three months before admission she pricked her foot with a nail. The wound soon healed, but a fortnight afterwards she complained of aching pains in the back, and stiffness of the neck and upper extremities. These symptoms continued, and a month later she had severe spasms in the muscles of the back, and rigidity of the legs. At the time of admission the spasms occurred much more frequently, and the patient was decidedly weak. The abdominal muscles were very tense and rigid, and seemed to prevail over the erector spinæ, so that the trunk was a little flexed. The thighs were flexed to a right angle with the trunk, and the legs were strongly contracted. The spasms recurred about every five minutes at the time of admission, and were attended with severe pain, but under treatment the condition of the patient improved considerably, and the frequency and severity of the spasms alike diminished, indeed for about three weeks they entirely disappeared. However, the cessation was but temporary. A fortnight before death the spasms recurred with renewed vigour, the respiratory muscles became affected, and the patient speedily sank.

At the autopsy there was no obvious visceral disease save a little broncho-pneumonia on the right side. As the body was lying supine on the table it was noted that there was marked lordosis of the spine.

Description of the preparation.—The specimen consists



Section through lower part of vertebral column showing spondylolisthesis.

of the right half of a lumbar spine and a portion of the sacrum, which have been removed by a section in the

mesial plane. At the lumbo-sacral angle there is a dislocation forwards of the lumbar spine upon the sacrum, so that the anterior inferior border of the body of the fifth lumbar vertebra is one inch in front of the anterior superior border of the first sacral. The bodies of the first four lumbar vertebræ and the intervening discs are normal in their appearance and in their relations. The disc between the fourth and fifth lumbar vertebræ is markedly wedge-shaped, measuring seven-eighths of an inch in depth at its anterior border, and only three-eighths behind. The body of the fifth lumbar vertebra is normal in shape and structure. There has been a separation of its inferior surface from the succeeding intervertebral disc, and the body of the vertebra has slipped forwards, so that only the posterior half of the inferior surface is in contact with the disc. Owing to this dislocation the shape of the lumbo-sacral disc is much altered, for its posterior half is uncovered by bone on its upper surface, and, being relieved of pressure, bulges into the spinal canal. The posterior common ligament is tightly stretched over its margin behind, while in front the anterior common ligament has been stripped off the disc and carried forwards by the body of the fifth lumbar vertebra. The relation of this lumbo-sacral disc to the first piece of the sacrum is unaffected.

The long axis of the sacrum forms with that of the upper lumbar spine, an angle of 90° instead of about 120°. The posterior surfaces of the bodies of the first four lumbar vertebræ are in the same straight line, the normal lumbar curvature being replaced by the sharp bend at the sacro-vertebral angle. The plane of the posterior surface of the fifth lumbar lies three-quarters of an inch in front of the diagonal plane from the posterior-superior to the anterior-inferior margin of the body of the first sacral vertebra. The inferior surface of the fourth lumbar, and the superior surface of the first sacral enclose an angle of 45° ; while the anterior surface of the fifth lumbar forms an angle of 115° with the anterior surface

of the first sacral vertebra. The spinal canal shows a marked increase of width opposite the body of the fifth lumbar, where it measures an inch and three-eighths as compared with five-eighths of an inch opposite the bodies of the first, second and third lumbar vertebræ. The width of the canal opposite the fourth body is an inch and a quarter.

The arches of the two lowest lumbar vertebræ are misshapen, and present long outgrowths on the pedicles and costal processes. The trunks of the fourth and fifth lumbar nerves appear to be compressed as they issue from the intervertebral foramina.

A Committee consisting of Drs. Champneys, Galabin and Herman, and Mr. Targett was appointed to report on this specimen.

DOUBLE HÆMATOSALPINX: SUSPECTED EARLY TUBAL GESTATION ON BOTH SIDES.

By Alban Doran.

Mr. Doran exhibited the appendages of a patient, aged 36, who had been subject for many years to severe pelvic pain. In April, 1890, two violent attacks occurred, and the patient was laid up for several months. In February, 1891, two very severe attacks, of a similar character to the former, came on, and a third shortly after digital exploration of the pelvis. Mr. Doran removed the appendages, finding the pelvis full of blood and clot. The left tube was dilated and rent close to the ostium, the ovary contained a recent corpus luteum. The right tube was greatly dilated and full of old clot. The first attack in April, 1890, and in February, 1891, had come on when the period was overdue. A structure

like an aborted ovum lay in the midst of the clot in the right tube. The patient made a good recovery.

DIFFUSE MALIGNANT DISEASE OF THE BODY OF THE UTERUS.

By S. W. Wheaton, M.D., for William Duncan, M.D.

Dr. Wheaton showed (for Dr. W. Duncan) a uterus removed by the vaginal operation.

The patient, aged 44, was married and had four children. She had suffered from irregular uterine hæmorrhage for one year, bleeding having been constant for one month previous to admission. She was sallow and anæmic and had lost much flesh; the uterus was enlarged, measuring three and a quarter inches, but quite free and moveable. Portions of the mucous membrane removed by the curette showed great hypertrophy of the uterine glands, which instead of being lined by a single layer of cells were filled with cells several layers in depth. These cells were perforating the basement membrane of the glands and escaping into the surrounding tissue. In some places there were columns of epithelial cells not confined by any basement membrane. Upon these appearances and symptoms a diagnosis of malignant disease was founded and vaginal extirpation performed. The operation had to be postponed for one month owing to irregular hæmorrhage. At the present date, one month from the operation, the patient is quite well. The uterus after removal measured four inches in length, its walls were one inch in thickness and tough, with a pale-grey gelatinous appearance on section. There were peritoneal adhesions on its surface. The mucous membrane was everywhere swollen, soft and friable, the cervix was quite healthy.

Microscopical sections of the growth removed by the curette and of the uterus after removal were shown by Dr. Wheaton, who said that the diagnosis between this condition and chronic endometritis was most difficult. The chief points of distinction were (1) the fact that the uterine glands were lined by cells several layers in depth, (2) the perforation of the basement membrane of the glands by their proliferating epithelium, (3) the entire absence of basement membrane in places (the epithelial cells being found free and unconfined in the muscular and decidual tissue), and (4) the small-celled infiltration of the subjacent muscular tissue, all of which changes except the last were absent in chronic endometritis.

Dr. W. S. A. Griffith could not accept the statement that the histological characters of the section made from the scraping certainly indicated cancer, they were the same in many specimens of simple gland proliferation. The appearance of several layers of cells in the lumen of a gland was quite delusive, and very common in healthy structures, being due to the obliquity of the section through the gland, portions of a row of cells being thus exposed.

Dr. Horrocks asked whether the disease affected the whole of the area of the mucous membrane of the uterus, and if any part was more deeply affected than another.

Dr. Herbert Spencer desired information as to the history of the case. The diagnosis of commencing carcinomatous change in the uterine glands was extremely difficult. He could find no evidence of such change in the sections exhibited. He agreed with Dr. Griffith in considering the appearance of several layers of cells in some of the glands to be due to obliquity of the section. The specimen appeared to show endometritis and not cancer. Dr. Spencer did not find any malignant disease of the muscular wall. He had watched such a case for nearly eighteen months, the disease recurring after curetting; in this case the muscular wall was merely hypertrophied. He would regard such a history, together with the fact that there was but slight thickening of the endometrium and no affection of the muscular wall, as excluding cancer.

A Committee consisting of Drs. Herman, Griffith, Duncan and Wheaton was appointed to report on this specimen.

A CASE OF EXTRA-UTERINE PREGNANCY AT FULL TERM—REMOVAL OF CHILD AND PLACENTA BY ABDOMINAL SECTION — RECOVERY.

By John W. Taylor, F.R.C.S. (Birmingham),
SURGEON TO THE BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.

(Received November 12th, 1890.)

(*Abstract.*)

1. The author introduces the case by reference to somewhat similar records published in the 'Transactions' of the Society, and points out the distinctive features which separate the present from previously reported cases.

2. The previous history of the case is detailed, as written by Dr. Lycett of Wolverhampton.

3. An account is given of the operation of abdominal section for removal of the child; of the interval between this and the second operation; of the operation for removal of the placenta on the twelfth day; and of the subsequent history of the case until the recovery and discharge of the patient.

4. The author concludes with a short commentary on the case, to which is added Dr. Lycett's description of the child.

The case which I have the honour to bring before the notice of the Obstetrical Society is an extra-uterine pregnancy at full term successfully treated by abdominal section.

It is similar to the cases reported to this Society by Mr. Jessop and Dr. Champneys in that the infant was

lying free in the abdominal cavity. It is also similar to these cases in the initial operation employed, and to Mr. Jessop's case in its issue of recovery for both mother and child.

It differs from these cases and, I believe, from all other recorded cases, except that of Prof. Litzmann of Kiel,* in the fact that the placenta was removed some days after the birth of the child as soon as the symptoms showed (as we believed) decided evidence of putrefactive changes.

This necessarily makes the after history of the case specially interesting and instructive, and its record may be of some value as a guide to future practice.

The case occurred at the Hospital for Women, Wolverhampton, the patient being under the care of Dr. Lycett who referred her to me (as one of the Consulting Surgical Staff) for surgical advice and treatment.

Dr. Lycett writes on June 20th, 1890. "In the night I was called to Mrs. W—, and finding her case required abdominal section sent you a telegram.

"The history is as follows: She is the mother, I believe, of three children, the last being now over eleven years of age: all healthy, as also are herself and her husband.

"I saw her in the early part of last December in consequence of her complaining of some occasional pain in the pelvis, having missed her last period; previous periods always regular. On examination I found the cervix soft and to the side of the uterus a distinct swelling, moveable, easily determined by bimanual touch, about the size of a Ribstone pippin (apple). In view of the history and physical signs I considered the case a Fallopian pregnancy, and told the patient so, advising her removal to the hospital. Being nervous, this advice was not followed, and I was again sent for on December 30th, 1889 in consequence of certain symptoms suddenly developing. I then found a somewhat tense swelling of some magnitude, occupying not only the lateral but the posterior regions of the uterus, evidently effused blood, and, coincidently with

* 'Arch. f. Gyn.,' 1880, Bd. xvi.

these events, some hæmorrhage from the uterus which I found to be empty though enlarged. The patient again refused to act upon advice and I hoped that the fœtus would be destroyed and the effusion in time be absorbed. As the patient was poor, and would not follow advice I saw no more of her until midnight when I was sent for in consequence of her suffering great pain. I found that the gestation had progressed and must be near the full period."

On the next morning (June 21st, 1890) I saw the patient at the hospital in consultation with Dr. Lycett and made the following notes:

"The patient's name is M. W—, she is thirty-five years of age, and has four children, the youngest being eleven. She menstruated regularly until the beginning of October, 1889, which was the time, or about the time, of the last normal menstruation, and she then missed a period. This was followed for some time by irregular hæmorrhage and pain for which she was attended by Dr. Lycett at the end of December, 1889 and the beginning of January, 1890. She has had occasional abdominal pain since this date, but not such as to need medical advice until the last few days when the pain has been severe.

"On examination the abdomen is seen to be greatly enlarged, the enlargement being almost confined to the left half of the abdomen. By palpation the outline of a full-sized fœtus can be plainly distinguished through the abdominal walls, its head lying lowest, above the left groin, while the breech and legs can be felt, although not so plainly, just below the ensiform cartilage and the costal cartilages of the left side. Over the thorax of the child the pulsation of the fœtal heart can be distinctly heard. To the right of the fœtal head and slightly lower in position is a large globular mass which is probably placenta. *Per vaginam* the cervix is found to be widely open, the uterus is not much enlarged, the sound only passing two and a half inches. The lowest portion of the swelling (placenta ?) is to be felt behind the uterus.

"The patient is thin, restless, complaining of much intermittent abdominal pain; otherwise her general condition is satisfactory."

At this consultation we came to the conclusion that the pregnancy had arrived, or nearly arrived, at full term, and it seemed highly probable that the acute pain for which Dr. Lycett had been summoned was due to this fact. From the interesting history of the case which had been kept by Dr. Lycett, we concluded that the pregnancy had originally been tubal, that it had ruptured into the broad ligament, and had possibly developed beneath the peritoneum on the left side. In this idea of sub-peritoneal development we were mistaken, as the history of operation will show.

Although the natural position of the fœtus was entirely lateral, as has already been described, it was noticed that it could be rather freely moved across the middle line, and be made to take up an almost central situation. This, and the high position of the child, should probably have negatived the diagnosis of a sub-peritoneal pregnancy. Manipulation of the abdomen, however, caused pain, and it was not until the patient was under the influence of the anæsthetic that the ease with which the fœtus could be moved within the abdomen, was thoroughly appreciated.

First Operation: Birth of Child.

On June 24th, in the presence of Drs. Lycett, Smith, and Hubbersley, I opened the patient's abdomen, Dr. Lycett assisting me, and Dr. Hubbersley giving the anæsthetic. The incision (left lateral, on the outer side of the rectus muscle) was made directly over the head of the child. This opened the peritoneal cavity throughout its whole extent, there being no adhesions to the anterior abdominal wall, and no displacement upwards of the peritoneum. Over half of the child's head, and enveloping much of its body, was a thick red fleshy substance, the

altered great omentum. At its margin, and joined to it, was a very thin transparent pellicle covering the rest of the head, and through this the hairy occiput of the child was plainly visible. At a touch this broke down or separated from the omentum, and, after enlarging the incision in the parietes to allow of delivery, the child was born by gentle compression of the abdomen in the direction of the opening made. The umbilical cord was divided between two ligatures, and the infant, being alive and vigorous, was separated from its mother.

The abdominal cavity was then examined both by inspection and touch. No sac had existed, but the child had been free in the peritoneal cavity, save for the covering of the omentum and one or two filmy adhesions between this and the intestines, among which the infant had been lying. As no amnion could be found there was, of course, no liquor amnii. The child was well covered with vernix caseosa, as in Mr. Jessop's case. The placenta was attached all over the pelvis, the bulk of it lying to the right of the middle line, exactly in the position that had been diagnosed previous to operation.

Some vascular attachments of the cord prevented its being drawn out of the wound to its full extent. It was withdrawn as far as possible, and allowed to rest in the lower angle of the incision. The rest of the incision was closed by sutures in the usual way. The cord had been previously shortened, and as much blood as would flow from the freshly cut end was allowed to escape. This did not amount to more than one or two ounces. A glass drainage-tube was placed alongside of the cord in the lower angle of the wound.

The immediate result of the operation was very satisfactory, but from the next day after the operation it was noticed that there was a distinct tendency for flatus to collect on the right side of the abdomen (therefore above the placenta), and the consequent distension was only kept down by repeated enemata. There was no vomiting whatever. On the seventh day the evening temperature

had risen to 101° F., on the eighth to 101·6° F., and on the tenth and eleventh to 102° F. The wound had completely healed, but the site of the placenta was tender to touch, and evidently the seat of mischief.

Second Operation: Removal of the Placenta.

On the twelfth morning (July 5th) it was considered necessary to explore the abdomen, with a view to the removal of the placenta. Instruments and sponges were placed in readiness as for a primary abdominal section, and in addition to the usual preparations, about twenty ounces of a dilute solution of perchloride of iron was poured into a small hand-basin, to be used, if necessary, for hæmorrhage.

The incision was re-opened by the finger. There were no adhesions immediately under the wound so that the peritoneal cavity was again directly opened. Recent adhesions existed between the anterior abdominal wall and the upper surface of the placenta to the right of the incision, and these had to be separated before the placenta could be examined and removed. The cord, which at the lower angle of the wound had become attached to the sides of the incision and had retained its vitality in this situation, was found to be black and gangrenous beyond this, and where it joined the placenta the latter had begun to putrefy also. There was no pus or other liquid discharge, but the surface was discoloured and the smell from it was exceedingly offensive. The placenta, which was of large size and had undergone no diminution in bulk since the first operation, was now rapidly separated from the viscera to which it was attached, the hæmorrhage being immediately profuse and alarming. A large sponge was passed through the iron solution, and as the placenta was removed the latter was replaced by the sponge, other sponges being pressed tightly above the styptic sponge. By this means the bleeding was checked and the abdomen which had been temporarily flooded with blood was then

cleaned, the cord separated from its final attachments near the wound, and the whole placental mass thoroughly removed.

The sutures were then passed and the sponges taken out. As the styptic sponge was removed the hæmorrhage recurred nearly as profusely as at first. One large piece of tissue of uncertain nature, to which the placenta had been attached, was transfixed and tied, but only in this case was it possible to use a ligature to the bleeding parts. The iron solution was again used freely, a glass drainage-tube was placed in the pelvis and the abdominal wound closed again. The pelvis was syringed out with the iron solution through the drainage-tube, and an abdominal binder applied tightly, after which but little more bleeding occurred.

During the tying of the sutures some trouble was occasioned by prolapse of the intestines through the wound, but as little time was lost as possible, and as soon as the operation could be completed the patient was transferred to a clean dry bed with every artificial aid to promote reaction. This was difficult to obtain, the extremities were cold, and it was some time before the pulse and general condition could be regarded as satisfactory or safe. By the next morning, however, the patient was much better, the pulse was stronger and had dropped from 130 to 112. No bleeding of importance had taken place through the tube, and the immediate danger from the operation was over.

After-progress of the Case.

The convalescence was protracted, and it was not until about six weeks after operation that the patient could be considered free from danger. Observations of pulse and temperature were made, for the most part, every four hours, and are preserved in the operation case-book. On reference to this record it is seen that the whole time of which I am writing was marked by evening pyrexia,

the usual rise being to 100° F. or more. The general course of convalescence was broken, however, by three special pyrexial periods, during each of which the elevation of temperature calls for something more than a passing notice.

The first of these periods occurred between July 8th and 15th. The highest temperature recorded at this time was 101·8° F. At its close the left leg became acutely swollen and painful.

The second pyrexial period lasted from July 25th to August 1st, the temperature record reaching 103·6° F. on the evening of July 27th. At the close of this period the right leg became swollen.

The third period lasted from the 13th of August until the 23rd of the same month, the temperature being on several occasions between 102° and 103° F. Towards the close of this period swelling and tenderness were noticed in the right loin. On the 23rd of August the temperature fell to the normal and (with a transient exception which will be noticed later) remained so until the discharge of the patient on October 4th.

Briefly stated, the history of the case, for some seven or eight weeks after the removal of the placenta, showed extensive thrombosis attended with a very varying temperature, but with no indication of any tendency to suppuration. The left iliac veins appeared to be first affected, then the inferior cava and right iliacs, and finally the right renal vein. Each of these extensions of the thrombus was signalised by definite physical signs, the first by painful swelling of the left leg, the second by transient swelling of the right leg, and the third by distinct enlargement and tenderness about the right kidney.

It may be noticed on reference to the temperature record that on each occasion the physical signs *followed* the temperature, and it was not indeed until the pyrexia was improving that the local manifestations could be found. Each attack was but temporary, the swelling of the left leg persisted longest, for about ten days, that of the right leg and right loin were each of about one week's duration.

During the whole of this time there were no direct abdominal symptoms. The wound healed well, the drainage-tube being removed on the tenth day, and from first to last there was no trace of any suppuration save in the track of the drainage-tube. In the last attack alluded to a small amount of albumen was found in the urine, not more, however, than might reasonably have been expected from the pyrexial condition through which the patient was passing. The final five or six weeks of the patient's stay in hospital was, with one exception, a time of steady progress and recovery. The exception was a pyrexial attack of only three days' duration for which no cause could be found. This occurred about a month before her discharge. Her recovery after this was absolutely uninterrupted, and she left the hospital quite well on October 4th.

Remarks.—This is an interesting example of that rare class of cases in which there is no sac, but the fœtus is free in the abdominal cavity. The diagnosis was remarkably easy. There could have been no difficulty in recognising the condition present. The treatment of the case demands some comment. The removal of the placenta was, I believe, good surgery, but none will appreciate the difficulties and dangers of such treatment so thoroughly as the surgeon who has operated under these or similar circumstances.

The operation of delivery of the child was, and apparently often is, easy and safe, but the operation of removal of the placenta in these cases must always be a proceeding which only necessity can justify. When the placenta is left, the cord appears to be the first and chief source of danger. I was surprised to find at the second operation that the cord which in the wound was living and healthy, beyond the wound (between it and the placenta) was dead and putrid. If I had another case I would endeavour to make it a special object of the primary laparotomy to remove the cord right up to its insertion into the placenta. I would completely close the abdomen and only remove

the placenta, as I did in this case, when it became evident that it was unsafe to leave it any longer. The after-treatment of the case resolved itself almost entirely into questions of good nursing and support. As the legs become affected they were enveloped in cotton wool, and perfect rest was maintained until the patient could be considered safe both from extension of thrombus and breaking of clot.

Dr. Lycett, whose care of Mrs. W— during this critical period deserves most hearty recognition, had main charge of the case throughout. The child, which was slightly deformed, was carefully examined by him, and the following description is taken from his report.

"The infant, a female, was fully developed, weighing over seven pounds. The head was elongated in the occipito-frontal diameter, and viewed from above its horizontal outline is seen to be irregularly concavo-convex, the right side being centrally depressed and the left correspondingly prominent. Behind the central depression on the right side the posterior part of the right parietal bone is elevated into an unnatural eminence or boss, the sub-occipito-vertical diameter on this side being deeper than on the left side.

"The larynx and neck anterior to the right sterno-mastoid muscle were also depressed. This appeared to affect slightly the patency of the respiratory passages and for some weeks there was embarrassment of breathing and an unnaturally shrill sound on crying.

"The right foot presented a minor degree of talipes the calcaneo-valgus character, posterior to the knee-joint the condyles of the femur were visibly prominent, and the leg could not be normally flexed to any degree with justifiable force, but could readily be flexed to more than a right angle towards the outer and front part of the thigh, owing to the relaxed state of the opposing ligaments."

Four months later Dr. Lycett writes: "The shape of the head is undergoing gradual improvement, and the

child is not deficient mentally, as she notices in an intelligent manner whatever attracts her attention. An instrument has been adjusted to the right leg by Mr. Reave of Wolverhampton. This has cured the talipes, and, while preventing abnormal movement at the knee-joint, is gradually inducing natural flexion with corresponding improvement in the articulation; so that the infant, if spared, promises to be little the worse for the extra-uterine development. At the present date (November 10th) both mother and child are perfectly well."*

* Since sending the report Mr. Taylor writes that the infant has died suddenly from convulsions. The mother continues in good health.—(EDITOR.)

A CASE OF EXTRA-UTERINE GESTATION, THE SAC BEING SITUATED IN THE RIGHT BROAD LIGAMENT, PREGNANCY ADVANCED TO THE EARLY PART OF THE FOURTH MONTH.

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(Received April 19th, 1890.)

I saw the patient, who was under the care of Mr. Rout, of Hornsey, on July 4th, 1889; her age was 32. She had been married eleven years without previous pregnancy. The catamenia had been uniformly regular since the age of fifteen, lasting four days rather profusely until April 3rd, 1889, when the flow lasted only one day, since then there had been no recurrence.

As a child, for a period of two years, she suffered from chronic strumous abscesses, but had no other important illness since. Since her marriage also she has been always in good health, and has needed no medical attendance. There is no history of vaginitis or pelvic inflammation of any kind. Family history also good.

Sickness, which continued all day, began in May, 1889, and severe pain in the right iliac and umbilical regions, a week later. Since then she has had three severe attacks of pain with faintness; the last, a fortnight before I saw her, continued fourteen hours and was very severe. She had also has frequent slighter attacks. There has been no vaginal hæmorrhage. She looks very thin and pale, rather than anæmic, and says she is losing flesh rapidly. The bowels act regularly. The breasts are large, and

present, well marked, the characters of pregnancy. The linea alba is pigmented.

The abdomen is slightly distended by a rather hard, tender, fixed swelling occupying the right iliac region extending upward from Poupart's ligament midway to the umbilicus, and to within one and a half inches of the linea alba. This is dull on percussion, and not perceptibly affected by complete evacuation of the bladder. It extends a little way into the pelvic cavity, and on a bimanual examination it is identified as a spherical, not very well defined mass, the size of a fœtal head, displacing the uterus to the left side and fixing it there.

I had little hesitation under these circumstances in introducing the uterine probe which passed two and a half inches to the left of the tumour.

The diagnosis of extra-uterine gestation was inevitable, and we formed the opinion that the sac was situated in the right broad ligament.

The next question to be decided was whether the sac had ruptured into the peritoneal cavity? The abdomen was soft, there was no general distension apart from the local prominence caused by the tumour, and we did not expect to find that serious hæmorrhage had taken place. I advised operation with as little delay as possible, fearing that fatal hæmorrhage might occur at any time.

On the 7th, I opened the abdomen, Mr. Meredith giving me most valuable help. We found the peritoneum full of not very recent blood, chiefly clotted and adherent to everything. The sac was, as we expected, in the distended right broad ligament, its upper surface was extremely thin and translucent, and apparently consisted of the stretched peritoneum only, and the fœtal membranes. Rupture had taken place close to the uterus on the anterior surface of the sac, at a point where the peritoneum was reflected from the broad ligament on to the anterior abdominal wall, and where the oviduct and round ligament diverge. The opening was very small, and a minute blood-clot protruded through it.

There was no hæmorrhage until I had drawn off the liquor amnii (of which there was a considerable quantity) with a small cannula; then profuse bleeding began, but was stopped by tearing open the sac, removing the fœtus and plugging the cavity with sponges. This hæmorrhage made her very faint, and was, undoubtedly, the chief cause of her death afterwards.

We had now to deal with a sac fixed in the pelvis distended with sponges, and with walls so fragile that no suture would hold in them. Having partially washed out the peritoneum with hot water, we drained it and the sac separately, leaving one plug of wool soaked in perchloride of iron in the sac, with a thread of silk attached by which it could be withdrawn.

The operation lasted an hour and a half, a much longer time than was advisable, but this was chiefly owing to the difficulty of washing out the adherent blood-clots, and of devising means for the drainage of the sac, and for the prevention of further hæmorrhage. The patient only lived an hour after the operation.

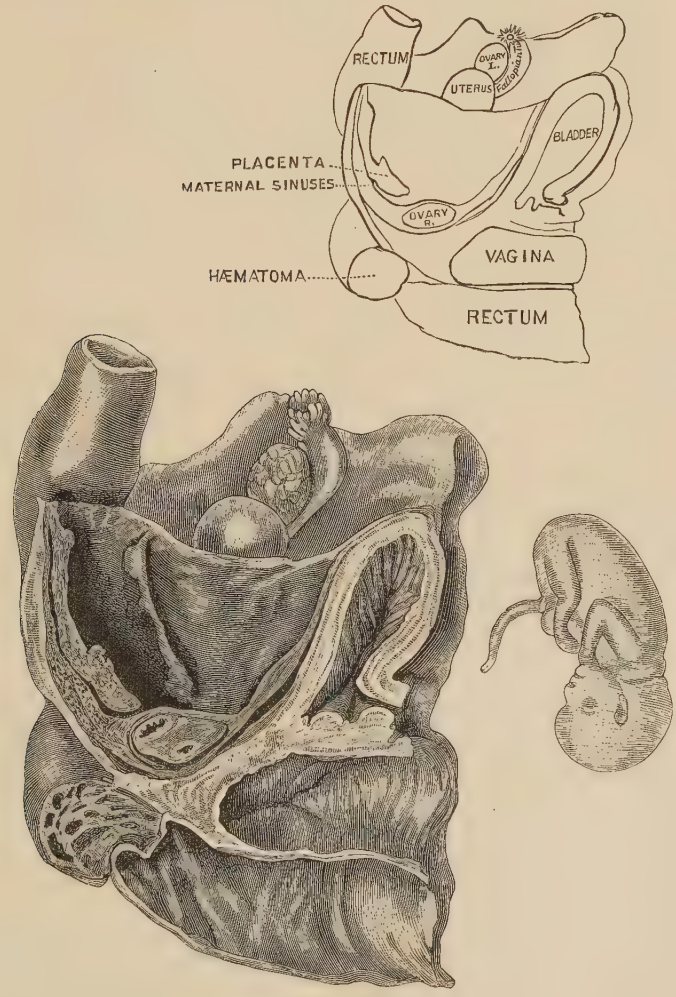
Later in the day I examined the body and removed the pelvic contents. The sac occupied the whole of the right half of the pelvic cavity, the uterus and rectum being pushed to the left.

The uterus measured three inches in length, its walls were only slightly thickened, the greatest thickness of the body being an inch and a quarter. It was displaced to the left side of the pelvis and to the left of the bladder (which maintained its natural position) by the gestation sac. The upper part of the rectum lay directly behind it.

The peritoneum passed from the anterior surface of the uterus directly on to the anterior abdominal wall to the left of the bladder, and this pouch could not strictly be called utero-vesical. Its depth was one inch.

The utero-rectal pouch was two and three quarter inches in depth, very narrow, and bounded in front by the posterior surface of the uterus, behind by the rectum, and on the right by the peritoneum of the posterior surface

of the right broad ligament, which passed directly from the right posterior border of the uterus to the middle of the anterior surface of the rectum.



Sagittal section of female genital organs from a case of extra-uterine fœtation.

The left ovary, round ligament, and oviduct were readily traced, the ligament to the internal ring, the ovi-

duct outwards to the left iliac fossa. The outer two-thirds of the oviduct were thickened ; its peritoneal orifice was closed. On section of the thickened part the mucous membrane was partially destroyed, and the lumen correspondingly enlarged.

On microscopical examination of the left oviduct the muscular wall was found to be thin and expanded. In place of the normal folds of mucous membrane the canal was completely filled by leucocytes and the connective-tissue stroma of the folds. Imperfect columnar epithelium still lined some of the folds, especially at the periphery. The tube was evidently in a chronic state of destructive inflammation.

The sac (after hardening in spirit) measured three inches antero-posteriorly, about the same in width and in depth. It was closely adherent to the right side of the body of the uterus, from which the peritoneum passed forwards to the left border of the bladder, backwards to the middle of the rectum.

The right round ligament could be traced in the anterior fold of peritoneum.

The thin translucent superior surface of the sac was destroyed during the operation. The remainder, embedded in the tissue of the broad ligament, was of considerable thickness ; it was separated in front from the bladder by loose connective tissue, behind it lay close to the posterior pelvic wall, and was attached to it by fat and cellular tissue. The proper wall of the sac appeared to consist of rather dense connective tissue, and was thickest posteriorly ; a part of the posterior wall was honeycombed with sinuses, and corresponded to the seat of development of placental chorion internally.

Below the apex of the sac, by the side of the cervix, was seen the right ovary, in a pouch of peritoneum, to which it was attached by adhesions ; the section passed through a corpus luteum.

The developing placenta was easily distinguishable ; the fœtal chorionic portion appeared to be very lightly

attached to the maternal tissue, and was easily separated from it.

Below and behind the sac, and on the right side of the middle portion of the rectum and of the upper part of the vagina, in the loose tissue, was a considerable quantity of extravasated blood.

The remains of the right oviduct could be traced for a minute distance from the angle of the uterus to the sac, immediately posterior to the seat of rupture.

The placenta was situated on the posterior and external walls of the sac; it appeared to be less thick and more diffused than an ordinary intra-uterine placenta of this period, and was so lightly attached that in examining it the greatest care was necessary to avoid separation of the whole. The microscopical examination explains this, the only connective medium being blood-clot of a very limited thickness. In no part were villi seen to penetrate the connective tissue of the maternal wall.

On examination the chorion appeared to be normal in its histology. The villi were large and vascular; the exochorion epithelium was present. There was nothing that indicated the presence of a maternal sinus system, but in passing from the membranous chorion to the maternal structures an increasing quantity of blood-corpuscles was seen between the villi. At the line of separation of the placenta from the cyst-wall (which, unlike an intra-uterine placenta, appeared to involve no maternal structure) was a thin layer of solid blood-clot, and this again, on being traced into the cyst-wall, gradually decreased, and finally disappeared.

The cyst-wall at this part consisted, from without inwards, of peritoneum, loose cellular tissue and fat, with numerous large sinus-like vessels. This was the vascular portion of the wall.

Internal to this was a connective-tissue layer, clearly distinguished from the preceding by its containing bundles of smooth muscle-cells; the bundles, though separated from each other, were arranged in a regularly circular

manner, parallel to the surface of the cyst. This muscle-layer most probably represented the remains of the oviduct.

Within this muscular layer loose connective tissue with much extravasated blood was seen, not contained in sinuses, but generally diffused, increasing in quantity from without inwards, until nothing but blood-clot was seen, in which lay the chorionic villi.

No remains of the columnar epithelium of the oviduct were seen, no decidual cells, nor the large decidua-like cells described by Werth as observed by him in connection with the blood-vessels.

It appears, therefore, that in this case the union of fœtal and maternal structures was of the slightest and most fragile character; that before the extravasation blood (which might have occurred before, or as I expected at the time of the operation) the fœtal villi lay loosely enveloped by the loose tissue and blood-vessels of the remains of the mucous membrane of the oviduct; and that the extravasation of blood coming from the maternal side separated the villi from the cyst-wall and left the parts as we see them now.

The fœtus was three inches in length, from buttocks to vertex and appeared to be normally developed. It was alive at the time of the operation.

Remarks.—Both from a clinical and pathological aspect this case is one of interest, and the specimen adds one link to the chain of our knowledge of the development of gestation sacs in the broad ligaments. It is an earlier specimen than that of Werth ('Beiträge z. Anatomie der extrauterin Schwangerschaft,' 1887, p. 79), which was in the fifth month of pregnancy; and than that of Hart ('Edin. Med. Journ.,' vol. xxxiii, p. 332), also in the fifth month. This one cannot have been later than the middle of the fourth month, but we need still earlier specimens to complete our knowledge of the anatomy of the earliest stages of the process, the first separation of the layers of the meso-salpinx and the gradual unfolding of the broad ligament.

There is an analogous subject, which, so far as I know, has not yet obtained the attention it deserves, namely, the invasion of the broad ligaments by cystic ovarian tumours, with which these gestation sacs should be compared.

Mr. Doran, Spiegelberg, and Kaltenbach, have alluded to this subject, well known to operators, but the peculiar circumstances under which they occur have not been fully ascertained.

It would appear obvious, on anatomical grounds alone, that tumours of the ovary would be less likely to invade the broad ligament than what we may call tumours of the tube, for tumours of the ovary begin in a body already provided with a pedicle; and unless the tumour begins in the pedicle itself, or invades the pedicle whilst the tumour is still of small size, it would appear very improbable that it could at a later period invade the broad ligament. If this is the case, we should expect to find that the only simple (*i. e.* non-malignant) cysts of the ovary which invade the broad ligament must have originated in the hilum, and that in addition to these, only those tumours which have a malignant or quasi-malignant power of proliferation and invasion, distinct from a simple tendency to enlarge, would be likely to do so.

We must remember, however, the possibility of the ovary in health itself being sessile, and the different results which might occur if a tumour developed in it in this condition.

In the case of the oviduct, however, any progressive distension, such as that of gestation, which expands the whole circumference equally, must involve some separation of the layers of the meso-salpinx, and if it were not for the usual intra-peritoneal rupture of the sac, gestation sacs in the broad ligaments would probably be very much commoner.

It is not necessary to assume that the invasion of the broad ligament occurs suddenly with a rupture of the tube at this spot; indeed, it is far more likely that it occurs

gradually and that rupture occurs after the invasion of the broad ligament. When rupture does occur with hæmorrhage into the broad ligament, the rapid recovery from the shock, and the formation of a hæmatoma are characteristic, and are sufficient to indicate what has happened.

The next stage, that in which the gestation sac occupies the broad ligament, is well illustrated by this case, as well as by others in various later periods of development, the most recently recorded being those of Hart and Werth previously referred to.

In this case the sac is still limited to the broad ligament, it has not invaded the iliac fossa nor formed connections with parts which so often cause difficulty in identification at the time of operation.

The sac is large enough to have squeezed the uterus against the left side of the pelvis, and it is interesting to note that the bladder maintains its natural median position; its connection anteriorly with the pelvic and abdominal wall, though (with the exception of the urethral portion with the pelvic arch) very slight, is more firm than its connection with the cervix posteriorly. This point is further illustrated by another specimen described by the author, in which, while the uterus at the end of pregnancy was displaced above the pelvic brim by a solid ovarian tumour behind it, the bladder remained in its usual position behind the pubic arch when empty, and, when moderately distended, was found above the pubes, but not higher than is usual in advanced pregnancy.

When the sac was first exposed, it presented a convex, delicate, almost translucent dome. This was so thin that it was entirely destroyed at the operation, whereas the greater part of the sac, as the specimen shows, is thick, and is evidently formed in part by the fat and connective tissue of the base of the broad ligament in addition to the remains of the muscular wall of the oviduct, ensheathed by the peritoneal folds of the broad ligament. The peritoneum of the uterus has not begun to be separated, a

condition which is described in some later specimens, but it appears to be separated from the right side and anterior surface of the rectum.

This extreme thinness of the abdominal surface of these sacs has been described by Werth, and appears to me to be of importance when considering the question of operation, in these cases, as forming an additional reason for early interference. It also helps us to explain some cases of advanced gestation, where a considerable portion of the sac appears to consist of little but amnion, or of this with shrivelled atrophied membranous chorion. This thinning appears to be producible only in one way, namely, by the disappearance of the stretched and hypertrophied muscular wall of the tube from this area, and it appears probable that the muscular wall of the oviduct may gradually give way and be retracted to the sides of the deepest part of the sac, where it was recognised by Werth in a case similar to, but later than, this one by the bundles of muscular fibres and their arrangement. Knowing what we do about the capability of the peritoneum for development over the gravid uterus and abdominal tumours, it is less easy to explain the apparent absence of peritoneum from this part of the sac (if it really occurs) in cases of advanced extra-peritoneal gestation.

In this case, as in that of Werth, the oviduct can be traced only a minute distance from the side of the uterus and then is lost.

It is impossible in this as in so many cases to obtain certain evidence as to pre-existing disease of the affected oviduct, but the condition of the left may be accepted as almost certainly indicating the condition of the other. The mucous membrane of the left tube is practically destroyed (the middle portion of the tube was alone examined by the microscope), the whole lumen being occupied by leucocytes and remains of the connective tissue framework of the longitudinal folds. Damaged columnar epithelium remains only at places about the periphery of the lumen.

Now there can be no doubt about the inferences to be drawn from these appearances, namely, that the chief functions of the oviduct, including the safe passage of ova to the uterus, and perhaps the filtration of the spermatozoa, or even the complete prevention of their passage to the ovarian end of the tube, are seriously interfered with; and in such cases what can be more probable, if the canal remain pervious, than extra-uterine gestation? We must not infer from this evidence, as Mr. Lawson Tait has done even with less, that all cases or even the large majority of cases of extra-uterine gestation are due to salpingitis. In only one other instance out of some fifteen that I have examined have I succeeded in demonstrating unmistakeable disease of the oviduct. But it will be unwise to speak dogmatically either way at present. The histology of diseases of the oviduct needs much more study, especially in the slighter forms, before we can do this; but I think we may say that simple tubal gestation does occur without our being able to detect any damage or disease of even the epithelium of the tube, except such as is produced at the seat of the gestation sac, and is obviously the result of its presence.

The only other case in which I have found unmistakeable evidence of pre-existing tubal disease I have recorded in the 'Transactions of the Pathological Society,' vol. xxxviii, p. 227.

Two points in regard to the recognition of the less well-marked diseases of the oviduct may be noticed here. First, they will generally be overlooked unless sections are examined with the microscope, and almost any part of the tube may be taken for this purpose. Personally I have not yet met with a single instance, and I have examined a large number, where a disease of the mucous membrane of the oviduct has been limited to one portion. I cannot speak of the fimbriated portion with quite the same confidence, on account of the somewhat greater difficulty in getting perfect sections of this part, and the probability that in some cases of perimetritis affecting the

region of the orifice of the tube the fimbriæ may be affected without the disease spreading up the canal of the tube. But with these exceptions, which can hardly affect the question of the relation of diseases of the tube to tubal gestation, inflammation of the tube affects its whole length including the interstitial portion. I have not yet been able to ascertain the internal limit of the disease with certainty, but I have found it in the interstitial portion of the tube and absent from the general cavity of the uterus.

I would also say that the common practice of trying to pass a bristle from the tube to the uterus (the reverse being generally impossible) in order to ascertain its permeability, is useless and misleading. I have not yet met with a specimen of distended tube, hydrosalpinx, pyosalpinx, or hæmatosalpinx in which the uterine portion of the tube is not permeable, and frequently its lumen is larger than normal. The main cause of distension of the tube in such cases is closure of the fimbriated, not the uterine end.

The objection to the practice of passing a bristle is chiefly that, owing to the minute size of the lumen of this portion of the tube, which is about three-quarters of an inch in length, the difficulty met with is no true criterion of its permeability; a false passage through the mucous membrane is readily made, and a subsequent microscopical examination is almost valueless.

It is interesting that the ovary of the affected side was found in this case, though so displaced that, were it not for the antero-posterior section of the sac having divided it, it would probably not have been found. This is not an uncommon occurrence, and in some cases the absence of the ovary has been quoted as evidence of ovarian pregnancy. Werth gives instances of considerable displacement of the ovary, and many cases where the ovary was not found.

In this case the ovary is found in a sac of peritoneum to which it is partly fixed by recent adhesions, and it

contains a corpus luteum. The simplest explanation of this extraordinary displacement appears to be that the ovary was previously prolapsed and perhaps adherent to the right side of Douglas's pouch, and that the expanding broad ligament gradually covered it in. There appears to be no communication now between the sac in which it lies and Douglas's pouch.

The frequency with which both broad ligaments are invaded by tubal gestation-sacs will probably be found to be proportional to the frequency with which each tube is affected, and this is nearly equal. (Hennig gives 122 cases, 61 on each side, Parry 162 cases, 92 right and 70 left, Werth gives 16 cases of broad ligament pregnancy of which 9 were right-sided and 7 left.)

The displacement of the uterus which occurs in these cases is considerable, and is the natural result of the growth of the tumour to one side of it, which pushes it over to the opposite side. Subsequently, if the growth of the ovum continues, the intimate connection between the sac and the uterus causes the uterus to ascend on the front of the sac, generally, if not always, with elongation of the cervix. Hence, in advanced cases an incision in the median line of the abdomen will expose the elongated red fleshy uterus incorporated with the anterior wall of the sac. An incision or puncture here will penetrate the thickest part of the sac-wall, and may for a time add an element of doubt to the diagnosis and necessary procedure in the case.

The explanation of the utero-vesical or utero-abdominal pouch of peritoneum which remains here, even when the sac is elsewhere attached to the abdominal wall, has been explained by Dr. Hart.

With regard to the treatment of such cases as this, representing the early stage in the broad ligament, we have no authoritative rules to guide us, and these cases, whether our prospects of being able to diagnose them correctly do or do not improve, undoubtedly require special consideration. The risk of leaving them alone until the sac is

developed sufficiently to be attached to the abdominal wall and so be drained (or, as Mr. Lawson Tait recommends, of leaving the placenta and closing the sac without drainage), seems, with so thin and fragile a wall, to be great. On the other hand, again, we cannot recommend simple drawing off of the liquor amnii with a trocar, for this proceeding gave rise to such severe hæmorrhage in this case that it could not have been checked had not the abdomen been already open. Thus we are left with only one alternative, that adopted in this case. We have to face the difficulties of the prevention of hæmorrhage, not only at the time of operation, but for some days after, and the management of a sac by drainage or by closure, a sac deep in the pelvis that cannot be brought up to the abdominal incision, and with a part of its walls so delicate that no suture can be tied without cutting its way through.

Rather than attempt in this paper to lay down rules for our proceeding in such cases, I would ask the opinion of Fellows of this Society who have experience in dealing with cases of irremoveable cysts deep in the pelvis.

Werth's case had this advantage, that the sac, though larger than that in my case, was not in close contact with the uterus, and he was able to form a kind of pedicle between the two. Notwithstanding this the hæmorrhage was great.

A CASE OF OBSTRUCTED LABOUR, IN WHICH A LARGE FIBROMA OF THE OVARY OCCUPYING THE PELVIS WAS MISTAKEN FOR THE HEAD OF AN EXTRA-UTERINE FŒTUS.

By Walter Griffith, M.D., F.R.C.S., M.R.C.P.,
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(Received April 19th, 1890.)

The patient was sent into the Great Northern Hospital under my care, on February 9th, 1889, in labour; a hard spherical tumour occupying the pelvic cavity and believed by her attendants, Dr. Hume and Mr. Sheehy, to be an extra-uterine fœtus, prevented the intra-uterine child from entering the pelvis.

Her age was 29, and she had always enjoyed good health. She had been married eight years, and had a miscarriage three months after marriage, then three children at full time who are living; her labours were natural and followed by no complications, the last four years ago.

About six months after the last she had a slight flooding, passing clots, but it is uncertain whether this was a miscarriage or not.

Menstruation began at 15, and was uniformly regular; the last occurrence was from the 14th to the 17th of April, 1888.

In September, 1888, in the fifth month of pregnancy, she had some severe paroxysms of pain in the right side of the abdomen, but no hæmorrhage. Irregular pains began a fortnight before admission, strong labour-pains

at 3 p.m. on the 9th, and she was admitted at midnight. She was considerably exhausted, her expression was anxious, black sordes on lips and tongue, mouth and tongue dry. Temp. 100° F., pulse 124.

The abdomen was unusually and irregularly distended, especially prominent above the umbilicus.

Above the pubes a moderately distended bladder was felt, above this the distended uterus with the fœtus lying with its back to the left of the linea alba, the breech at the fundus, the head at the brim, and the small parts on the right side.

A loud uterine souffle was heard at a point just internal to the left iliac spine, and the fœtal heart midway between this and the navel.

There was great swelling and eversion of the vulva, which was of a dark blue colour.

On vaginal examination the finger came at once on a hard mass, so like a good-sized fœtal head that not one of us who examined the case even suspected it might be anything else. It evidently occupied the distended pouch of Douglas, it was flattened in front, convex below and behind. The finger in the rectum passed behind it. It appeared to be a head lying transversely, and a longitudinal ridge like an overlapping parietal bone at the sagittal suture was felt on its lower convex surface. It appeared also to be contained in the bag of waters, a layer of fluid surrounding it. It reached to within one and a half inches of the anal orifice, was moveable from side to side except during pains, but a reasonable amount of pressure did not displace it upwards. Two fingers could be passed between it and the symphysis, and above the symphysis the head of the intra-uterine fœtus was felt.

The posterior lip of the cervix was recognised high up and on a level with the upper border of the symphysis pubis. The anterior lip was not felt. Between the posterior lip and the fœtal head a loop of the cord was found. The liquor amnii had escaped. The uterus was in a state of commencing retraction, relaxation after each

pain being incomplete. The contraction-ring was not felt then, nor at any time during the operation of delivery.

Dr. Dakin and Mr. Doran had been good enough to come up with me, and with Dr. Hume and Mr. Sheehy we held a consultation, the patient being under an anæsthetic.

We were unanimous in our opinion as to the diagnosis, that it was a case of twins, one intra- the other extra-uterine and that the head of the extra-uterine fœtus blocked the pelvis, that we could not displace it, and that there was only a space of two inches between it and the symphysis.

We discussed three methods of delivery—

1. Cæsarean section, hoping to save the living fœtus, and leave the other sac to be dealt with according to circumstances.

2. Delivery of the extra-uterine fœtus by a vaginal incision.

3. Craniotomy of the intra-uterine fœtus.

We soon discarded the second proposal, of delivery by a vaginal incision, and, as events turned out, wisely, for I am convinced that, had our diagnosis been correct, it would have been the worst method to adopt.

There was more difference of opinion about the other alternatives—Cæsarean section or craniotomy, and we endeavoured to decide solely on the question of the least danger to the mother; each alternative offered advantages and disadvantages, between which it was very difficult to decide. There was no doubt that delivery was possible after craniotomy, though it would be difficult, the great objection to this proceeding being that the injury which prolonged traction would cause to the obstructing mass would inevitably lead to inflammation of it, with great liability to septic poisoning.

On the other hand, it was most certainly not a favourable case for Cæsarean section. The swelling and eversion of the vulva, the temperature and pulse, were sufficient in themselves to remove it from the favourable class

for this operation. In addition, I feared that the uterus formed the anterior wall of the gestation-sac, and that we might have great difficulty in getting retraction of the empty uterus, and so avoiding hæmorrhage.

We decided, then, upon craniotomy. The bladder was emptied, the vagina and rectum thoroughly douched, the head was perforated, and ineffectual attempts made to deliver with the craniotomy-forceps and with the cephalotribe, but no reasonable amount of traction would bring the head down. Version was then performed after two ineffectual attempts, the uterus having been at first too firmly contracted, and the body and head were then delivered with ease. During delivery the large veins in the swollen vulva were ruptured. The hæmorrhage was easily controlled by pressure-forceps.

The uterus did not contract well after delivery of the child, and the placenta was removed by the hand in the uterus; it was found attached to the anterior wall and the fundus. A hot uterine douche of carbolic lotion, 1 in 50, was then given, and ergotine injected into the buttock.

The further progress of the case need not be given in detail. The patient was able to pass water spontaneously on the second day. The sordes of the mouth and the swelling of the vulva rapidly disappeared. She had little pain; her temperature oscillated between 100° and 103°, with a gradual tendency to rise higher.

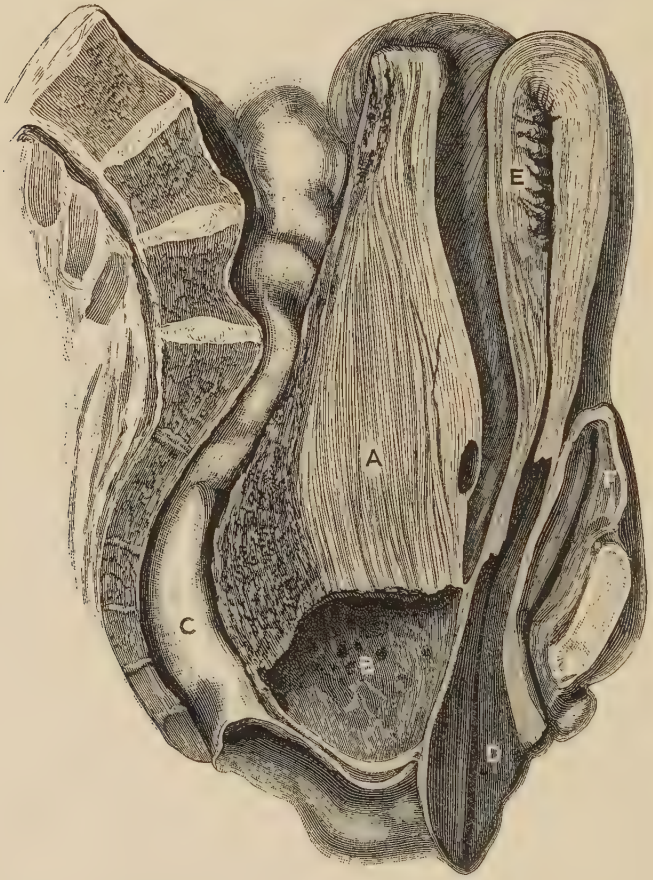
On the third day there was slight tympanites; the discharges were not offensive. The uterine souffle was now audible on the right side (not on the left as before) two inches above the middle of Poupart's ligament, and two inches to the right of the linea alba.

On the fourth day there was diarrhœa, easily checked, however, and it was not until the seventh day that she had very serious symptoms. Delirium set in, and she died on the eighth day.

At the post-mortem examination I was able to remove the parts in such a way that the relations of the different organs were completely retained, the whole pelvis and its

contents having been divided in a mesial sagittal direction after careful preparation and hardening in spirit.

Description of the pelvis and its contents.—The pelvis



Fibroma of ovary causing obstruction at inlet of pelvis. A. Tumour. B. Douglas's pouch filled with serum. C. Rectum. D. Vagina. E. Placental site in uterus. F. Bladder.

was large and well formed ; the true conjugate measured 5·2 inches, the transverse 5 inches, the antero-posterior diameter of the outlet (sacro-pubic) 4·7 inches.

The bladder lay mesially behind the pubes, extending one inch above it; with the urethra, it measured 4·5 inches in length.

The uterus was displaced upwards and forwards by the tumour, so that it lay (with the exception of the lower half of the cervix) entirely above the pubes.

The peritoneum of the anterior abdominal wall passed directly over the upper extremity of the bladder on to the uterus, a utero-abdominal pouch being thus formed, which measured 5·2 inches in depth.

The uterus externally was 6 inches in length, its greatest width was 5 inches. The sagittal section showed that it was divisible into two parts, a thick body and a thin-walled cervix. The junction of the two was easily defined posteriorly, the thick-walled body passing almost suddenly into the thin-walled cervix. As usual, the lower part of the anterior wall of the body was thicker than that of the posterior wall, but with this exception both walls were nearly of equal thickness, viz. 0·7 inch. The length of the posterior wall of the cervix was 1·75 inches, and of the body 4·5 inches; the length of the anterior wall of the cervix 1 inch, of the body 4·25 inches. The posterior wall of the vagina measured 4 inches, the anterior 3 inches.

The whole of the upper half of both walls of the uterine cavity was rough and irregular, and had the appearance of having been the site of the placenta. The posterior wall was more irregular than the anterior, though at the time of delivery I found the placenta attached only to the anterior wall and to the fundus. This rough area on each wall was triangular in outline, the base at the fundus being 2·5 inches wide, and its length was 2 inches from the fundus downwards. Below this the surface was quite smooth. If this rough surface represented the placental site only, we may say that on the seventh day it formed an area 4 inches in length by 2·5 inches in width at its widest part.

These measurements of the uterus, and the appearance

of the mucosa, show that it was undergoing a normal involution; the marked distinction between the cervix and body was probably accounted for by the enormous stretching of the cervix and vagina during the prolonged labour.

The displacement upwards and forwards of the uterus led to the formation of a large utero-sacral pouch of peritoneum, which measured (from the fundus uteri to the bottom of Douglas' pouch) 9 inches in length by 5 in breadth, and 3·5 antero-posteriorly (on a level with the sacral promontory).

The pelvic portion of the tumour occupied almost the whole of this cavity, except the lower 1·7 inches. This part, being full of serum, gave rise during life to the idea that we were dealing with a fœtal head in liquor amnii, and the fluid was shut in by recent lymph, which united the lower end of the tumour to the walls of the pouch. The ridge, which was mistaken for an edge of the sagittal suture, was formed by a slight ridge on the tumour, no doubt caused by the pressure of the intra-uterine fœtus on it.

The upper part of the tumour since it has been in spirit has shrunk considerably. It extended behind the bowels across the spine up the left side of the lumbar spine as high as the last rib on the left side. This oblique position exactly corresponded with the attachment of the mesentery.

The lower half, especially behind, was soft and gangrenous. This was the part most injured by pressure; the rest was hard and fibrous. Microscopically it consisted of mixed spindle-celled and well formed fibrous tissue, and the tumour was probably a simple fibroma of the ovary. It was loosely adherent to surrounding parts, and was seen to have originated in the outer and posterior portion of the right ovary. The remainder of the ovary appeared to be healthy.

Thus, the tumour had a good pedicle, and if an abdominal section had been performed, and the uterus had been emptied by a Cæsarean section, it could have been re-

moved without much difficulty. Its measurements now are 9 inches long by 4 wide and 3·5 thick.

The right oviduct was healthy.

The left ovary and oviduct were healthy. The ovary lay flattened out on the anterior surface of the tumour, and was loosely adherent to it.

The rectum lay to the left of the median line of the sacrum. In the specimen it is exposed in the left segment of the pelvis without being opened until it reaches the tip of the coccyx.

There is little to add to the account of the case, except my conviction that a Cæsarean section would have given the patient the best chance of recovery, and that it would be the best plan to adopt under similar circumstances, whatever the nature of the obstructing tumour.

A CASE OF EXTRA-UTERINE GESTATION ASSOCIATED WITH SLOUGHING OF THE ABDOMINAL WALL, AND ATTEMPTED EXTRUSION OF A MATURED AND PUTRID FŒTUS NEAR THE UMBILICUS.

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(Communicated by Dr. J. WATT BLACK.)

(Received February 27th, 1891.)

On February 10th, 1891, I was requested by Dr. Martin, of Hammersmith, to see a young married woman who was said to be seriously ill. The following history was obtained. She had been desperately ill for several weeks with fever, delirium, and sickness. A large abdominal tumour had existed for some months, and the uterine cavity was empty, for this had been proved by dilatation and digital exploration. The swelling near the umbilicus had been under observation for about ten days, and was thought to be a hernia or an abscess making its way through the abdominal wall. The patient, aged 28, had never borne a child, but she referred her present troubles to pregnancy, saying that she was ten months gone with child, and that was singular, as she thought she had had a miscarriage six months ago. The significance of the latter statement was great, as it pointed strongly to the preliminary uterine hæmorrhage so often observed in these cases.

I further gathered that she had been under medical care for attacks of severe pain in the lower abdomen about eight months previously, and that she had engaged a surgeon to attend her in a confinement which she confidently expected would take place in January, 1891.

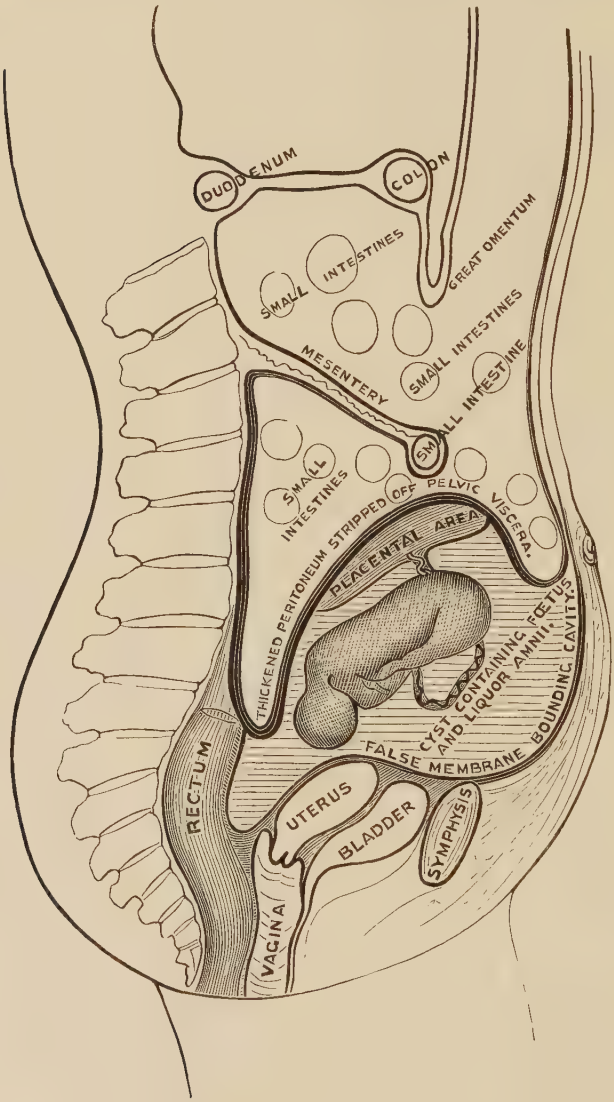
On December 23rd, 1890, she called upon Dr. Martin, and said that she was uneasy about her condition, for she had not felt the movements of the child for some days.

To summarize the trustworthy portion of the history, we had evidence of severe pain, an attack of hæmorrhage, and an abdominal swelling, in a young married woman who believed herself pregnant. Fœtal movements were lost, and the uterus itself was found empty.

On examination the woman presented the appearance of being very ill and exhausted from some septic disorder. The cheeks were flushed and shrunken, the eyes bright and staring, tongue and lips dry, fissured, covered with black sordes. Pulse quick and weak. Skin burning hot. Breasts wasted and flaccid. On uncovering the greatly distended abdomen, there was a considerable circular opening with sloughy margins in the situation of the umbilicus. Through this protruded a tumour the size of a turnip, tightly girt at its somewhat constricted base by the margins of the opening above noted. This tumour or protrusion was black, of an offensive odour, pultaceous in consistence ; it presented just the appearance of a gangrenous hernia or sloughing cancerous growth, which had infiltrated and burst through the abdominal wall.

The remainder of the abdomen was resonant. On deep palpation, however, the irregularities and angular projections characteristic of a fœtus were plainly to be felt. Chloroform was administered, and the opening cautiously enlarged downwards in the middle line. I passed my finger into the cavity and felt a lower limb of the fœtus, which indeed was practically in the position of a breech presentation at the umbilicus. By the ordinary manipulations requisite under such circumstances I was able to extract the fœtus, which was of full growth or nearly so, and horribly putrid. On its withdrawal a gush of very foul and dark fluid mixed with gas, sloughs and broken-down blood-clot, escaped. This continued and rapidly became of a brighter red, so that it was evident that brisk bleeding was taking place from

the walls of the cavity. I may here add that the umbilical cord of the fœtus was sloughy and early divided, so that no traction was made on the placental attachments.



As the flow of dark and red blood continued, I passed two fingers of my left hand into the cavity, and laid it freely open in the median line for about five inches. The following conditions were now evident. The cyst in which the fœtus had developed was obviously outside the peritoneum. The latter membrane was considerably thickened, and the mass of intestines could be plainly felt above it. The deeper recess of the cavity where the head and shoulders of the fœtus had lodged was behind the uterus and in front of the rectum, and was bounded above by the intestines and thickened peritoneum. The cavity was full of blood and putrescent clot, and the placenta in a disintegrating condition was attached deeply behind and above. By sweeping the hand round, it was certain that the whole cyst was separated by false membranes and thickened peritoneum from the general abdominal cavity. I next proceeded to pour in warm water, using an ordinary jug. This was done with some force and very freely, disregarding the condition of the bed and carpet. The brisk and copious irrigation speedily controlled the bleeding, and I then made bold to extract the placenta by gently picking away loose and disintegrated portions of it. This proceeding obviously increased the hæmorrhage, but this was readily controlled by the continuous stream of hot water, which also mechanically aided the manipulations employed. By steady perseverance the whole of the placenta was removed; the large cavity was then filled with sponges, and pressure employed for some fifteen minutes. All bleeding was thus arrested. The cavity was next thoroughly mopped out with powdered iodoform, and a large rubber tube reaching to the bottom of the cyst was inserted into the lower angle of the wound. A portion of the wound was then united in the ordinary manner with silk sutures, and the margins of the slough opening at the umbilicus freely cut away with scissors to promote healing action. The dressing was iodoform and mercuric cyanide gauze. The patient bore the operation well, and there was never any

appearance of shock. The quantity of warm water used was very considerable, it must have been measured by gallons. The hand could be borne in it without inconvenience.

After the dressing had been applied I made a vaginal examination. The uterus was high up and the os uteri slightly patulous.

Fourteen days after the operation I again saw the patient. The enormous cavity and extensive abdominal wound were slowly granulating, and the temperature had come down to the normal. She was extremely emaciated and exhausted, but took abundant nourishment. The cavity was washed out daily with warm water, and had already contracted greatly. There seemed no reason that the woman should not recover, except that she appeared hardly strong enough to fight against the prolonged period of suppuration and exhaustion through which she must inevitably pass. She ultimately recovered, but is at present (April 1st) the subject of fæcal fistula.

In my own experience of abdominal surgery and obstetrics this case is unique. I have three times seen cases of extra-uterine gestation eliminated by abscess and escape of the bones "piecemeal." One of these was through the uterus itself, another through the lower right abdominal wall, and a third through the rectum. In the latter case I was present as an assistant when Sir George Humphry removed the whole bony framework of a putrescent fœtus through an opening in the anterior wall of the rectum. Cases of this kind are in the experience of many. I can only interpret the present case by the light of an explanation kindly given me by Dr. Amand Routh, and also dwelt upon by Mr. Tait, that the original development was in the tube, that early rupture occurred between the layers of the broad ligament, and that notwithstanding this the fœtus continued to grow, and by its increase stripped off the peritoneum from the abdominal wall, rising upwards between the parietal peritoneum and the fascia transversalis. The slough at the umbilicus was

doubtless due to the direct pressure of the buttocks of the child. The putrescence of the fœtus must have arisen from the communication between the contents of the cyst and the atmosphere through the probably dilated Fallopian tube and cavity of the uterus, or from the close relationship of the cyst to the intestines, and the consequent passage of fæcal gas.

In Mr. Tait's lectures on ectopic gestation several cases are related where the anatomical conditions are similar to those observed in the present instance, and the enlarging fœtus had stripped off and elevated the peritoneum, lying outside that membrane. The name sub-peritoneo-abdominal is given to this form. The placenta is attached to the outer surface of the peritoneum, but doubtless the enormous vascular plexus found at the placental site implicates the intestines also, so that for practical purposes the placenta may be considered to grow upon the intestines. Secondary communication may readily take place with the peritoneal cavity at any time, and then coils of intestine might protrude hernia-like into the fœtal cyst. I do not in this brief paper propose to enter into a discussion upon the general diagnosis and treatment of ectopic gestation, as this has been fully dealt with by well-known authors. I would only draw the attention of the Society to some points and queries in connection with the present case which I hope are worthy of consideration, and from which our knowledge of the subject generally may be amplified.

Firstly, it illustrates what may almost be considered as a clinical law, that when a woman who is in the way of becoming pregnant suffers from severe attacks of pelvic pain, hæmorrhages from the uterus, and at the same time continues to enlarge and believes herself pregnant, but is conscious that her sensations differ widely from those experienced on similar occasions, extra-uterine gestation should be suspected. This woman, being a primigravida, was unable to distinguish such abnormal sensations.

Again, the case well exemplifies the extraordinary

manner in which a fœtus may develop in these cases, and the efforts which may be made by unaided nature to get rid of the encumbrance.

So far as the operation itself is concerned, I would especially draw attention to the marked value of hot water flushing for these and similar cases. The water should be of a temperature which is pleasantly hot to the back of the hand, and should be used abundantly. One great advantage of the employment of warm water is the ease with which it may be obtained, and it is free from the too little recognised risks of injecting powerful germicides over extensive absorbing surfaces. The remarkable results obtained by Barker and others in washing out large tubercular abscesses, with powerful streams of hot water, are worthy of mention in this connection. Personally, in general surgery, the conviction is gradually growing in my mind that the mechanical removal of what is likely to become putrescent, and the liberal dilution of any septic material that may remain, are two most potent considerations in treating foul sloughy cavities of any description.

The comparative ease with which the placenta was detached and removed affords a valuable hint as to the treatment of those cases where abdominal section is performed early, and the placenta on account of its formidable vascular connections is left untouched. If in such an instance signs of decomposition of the placental tissue and sepsis should arise, the operator should not hesitate to reopen the cavity to a moderate extent, and detach and remove the decomposed mass, when most of the vessels are sealed by inflammation and thrombosis; free flushing with warm water will greatly aid this proceeding, and diminish the danger of sepsis.

In conclusion, I would especially raise before the members of this Society an important question. Are there any reliable diagnostic signs by which an ectopic gestation can be pronounced to lie outside the peritoneum? From the anatomical conditions it would seem that sub-peritoneo-abdominal gestations afford favourable opportunities for

operation, and that the fœtus may become viable and be safely removed. It would be a matter of useful and important information to myself and many others if opinions could be elicited as to the most opportune period to perform abdominal section in the recognised varieties of ectopic gestation, supposing reasonable evidence of their presence existed. For the recent great advances in abdominal surgery must have modified many views advanced by even modern authors on this highly important subject.

Dr. Champneys said that the papers raised so many interesting points that it was impossible to refer to more than a few. He would ask Mr. Taylor as to the results of auscultation of the placenta in his case. In those cases which had been accurately observed, no sound had been heard over it. He had not heard what Mr. Taylor's experience in his case had been. This case completed a highly interesting series. In Mr. Jessop's the placenta had been left with drainage. The placenta disintegrated, and came away piecemeal, the patient recovering. In his (Dr. Champneys') case the same treatment was attempted, but the wound could not be kept open, and the tube became filled again and again with organised lymph like macaroni. The wound was therefore allowed to close after an interval of thirty-three days, during which the temperature was practically normal. After this, the patient had, at intervals, curious attacks with transient rises of temperature, from which, for a long time, she seemed to recover perfectly. The question of removing the placenta was repeatedly raised in consultation, but negatived, and she eventually succumbed to septic poisoning. The case had been wrongly criticised, without proper account being taken of the long interval of practically normal temperature, which entirely negatived the idea of absorption through the wound. The absorption was plainly through the other end, the placenta, and it was known that a placenta implanted on the bowel was capable of conveying septic mischief, the abdomen remaining closed. The cord was discoloured at the placental end, and appeared quite healthy in the abdominal wound, as in Mr. Taylor's case. He thought that Mr. Taylor's interpretation of his own case was faulty in this respect. He stated in his own paper ('Obst. Trans.,' vol. xxix, 1888, p. 456) that he made a mistake in not operating a second time and removing the placenta, but there was at that time no case to guide him. Mr. Taylor had since adopted this plan with satisfactory results. He would point out that the ridicule which had been directed

against the great danger of hæmorrhage in separating the placenta was entirely forbidden by Mr. Taylor's case. The hæmorrhage had been most dangerous. The question as to the pathology of these cases in the early stages of pregnancy was still obscure. The cases of Messrs. Jessop and Taylor survived, and furnished no data on this point. His own had died, and yet this point could not be determined, as one tube could not be traced. These cases may have originally been tubal. They may have been tubo-ovarian, the embryo dropping early into the peritoneal cavity. Lastly, he would call attention again to the great inferiority of these fœtuses. They were deformed by pressure, like a tench in a tree under water. Listen to the list of malformations in Mr. Taylor's case! He had watched with interest to hear the ultimate fate of the child, and heard that it died of convulsions. In these cases the mother's life was the consideration, and should not be jeopardised by one hair's breadth, especially for the sake of a fœtus whose life was most probably not worth purchase.

Mr. Alban Doran noted that in Dr. Griffith's case, where the existence of an extra-uterine twin was incorrectly diagnosed, the patient was in labour when she came into Dr. Griffith's hands, and was examined in consultation. The state of the patient at operation indicated damage to the pelvic structures already, and Mr. Doran doubted whether the craniotomy and extraction did much more harm. A case of this kind must, as a rule, come under the care of an obstetrician, not a surgeon experienced in abdominal surgery. The patient's condition being urgent, the obstetrician must act promptly, and he is more likely to manage a craniotomy well than to perform with success a complicated abdominal operation. On these principles Mr. Doran had advised Dr. Griffith, an obstetrician, to perform craniotomy. Mr. Doran related a case where a fœtal head pressing down in Douglas's pouch behind the uterus was mistaken for the lowest part of an ovarian cyst. The patient died suddenly, and extra-uterine pregnancy was discovered. The specimen is preserved in the museum of the Royal College of Surgeons (Path. Series No. 4697). The catamenial history had misled all who examined the case.

Dr. Herman thought that the cases in which the fœtus lay in the peritoneal cavity without an amniotic sac were easily explained. There must have been an amnion, but this would easily be torn by the movements of the child, and when once torn would soon be reduced to shreds. Probably if in such cases the vernix caseosa were carefully examined, bits of amnion would be found in it.

Dr. W. S. A. Griffith, in answer to Mr. Doran, still held that an abdominal section would be the wisest proceeding in such severe cases as that which he had recorded.

MAY 6TH, 1891.

J. WATT BLACK, M.D., President, in the Chair.

Present—33 Fellows.

Books were presented by Mr. Alban Doran, the Guy's Hospital Staff, the Middlesex Hospital Staff, the American Association of Obstetricians and Gynecologists, and La Société Belge de Gynécologie et d'Obstétrique.

Edwin Alfred Barton, L.R.C.P.Lond., and W. Rivers Pollock, M.B., B.C.Cantab., were admitted Fellows of the Society.

Charles Edmund Adams, M.R.C.S. (West Norwood), was declared admitted.

EXTIRPATION OF THE UTERUS FOR CANCER.

By WILLIAM DUNCAN, M.D.

BROAD LIGAMENT CYST.

By WILLIAM DUNCAN, M.D.

SPECIMEN OF DOUBLE HYDROSALPINX.

By W. S. A. Griffith, M.D.

From a woman aged 44, who died from heart disease with dropsy, after rheumatic fever at the age of forty. She had two children, youngest twenty years. She made

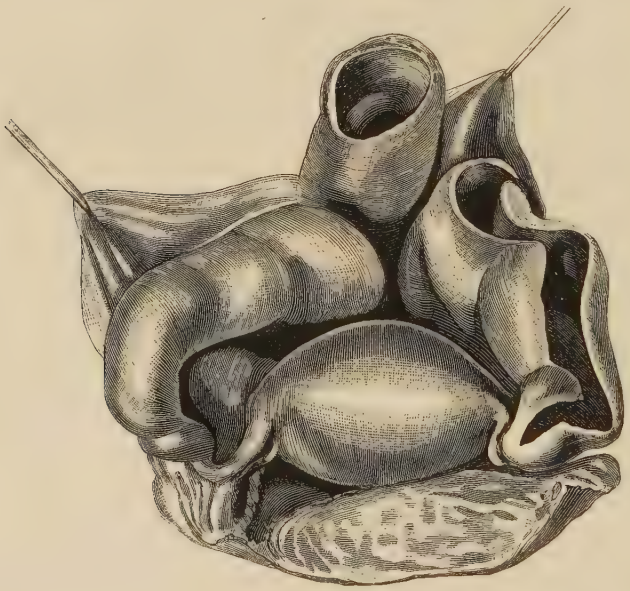


Fig. 1.—Double hydrosalpinx.

no complaints of pelvic trouble, and the condition was discovered at the post-mortem (St. Bartholomew's Hospital, No. 229, "Faith" Ward, 1890).

The uterus and ovaries are of natural size and healthy. Both oviducts are greatly distended; the abdominal orifices are closed. The uterine end of the left has been carefully examined, the lumen throughout being visible

to the eye. Under the microscope the folds of the lining mucous membrane are seen to be partially destroyed, and the lumen in consequence to be larger than normal.

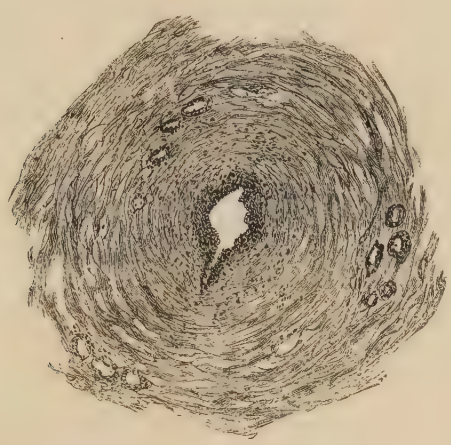


Fig. 2.—Microscopic section of uterine orifice of tube.

The extremities of the distended tubes lie in Douglas's pouch ; a band of adhesions forms a septum between them, passing from the middle of the uterus to the rectum ; another unites the end of the right tube to the rectum.

Mr. Alban Doran said that Drs. Ballantyne and Williams's views were not universally accepted, though they deserved the attention of all pathologists. It was a bold thing to say that hydrosalpinx caused no inconvenience, but the fact that these large distended tubes gave no trouble was only natural. The disease was chronic, the tubal walls atrophic, and the mucous membrane degenerate. In the earlier stages, when the muscular walls were hypertrophied, causing painful contractions, and the mucous membrane thickened and subject to periodical or constant congestion, the local symptoms were often marked and the constitutional effects severe.

Dr. Leith Napier thought that Mr. Doran had disposed admirably of certain points. He endorsed what Mr. Doran said by emphasizing the great distinctions between chronic latent hydrosalpinx, such as seen in Dr. Griffith's specimen,

and the other varieties of more acute develpment and of distinct clinical and pathological importance.

Dr. Horrocks thought some cases of hydrosalpinx were symptomless. At all events, specimens were occasionally found in the post-mortem room in patients who had died of some other disease, and who during life had made no complaint of the pelvic viscera. Still he thought as a rule there was at least dysmenorrhœa and often pain between the periods, and also menorrhagia, metrorrhagia and sterility.

Dr. Cullingworth thought that undue importance was apt to be assigned to the condition known as hydrosalpinx, which was very often a mere incidental result of a pelvic peritonitis due to some other cause than tubal disease, the fimbriated extremity of the tube becoming occluded by the peritonitis around it, and the tube itself becoming converted into a retention-cyst in consequence of that occlusion. He mentioned the case of a patient at present under his own care, in which abdominal section had been performed in a provincial town three years ago, and both tubes removed for hydro-salpinx, the *real* disease in the vermiform appendix having been overlooked. He inquired whether Dr. Griffith could say, in reference to the case from which this specimen had been taken, what was the cause of occlusion of the tubes. It did not seem to him (Dr. Cullingworth) that the tubes themselves were diseased, and it was therefore probable that here, too, the condition was a mere incident in the course of some other affection.

Dr. Heywood Smith observed that as the oviducts were drawn forwards and upwards, perhaps the kink at the uterine end sufficed to close the orifice, or perhaps it had been a case where the contents were discharged from time to time. He would ask whether Dr. Griffith had tried to pass a probe from the uterine end, as in making his sections the point of closure might have been overlooked.

Dr. Herbert Spencer had also often found the uterine end of the tube patent in cases of hydrosalpinx. He agreed with Mr. Doran in regarding congestion of the tube as the actual cause of the obstruction. In the somewhat analogous cases of hydronephrosis due to pressure on the ureter by growth in the broad ligament, he had observed at the post-mortem examination that the kidney could be made to empty itself completely into the bladder by slight pressure by the hand, the obstruction having diminished or disappeared with the cessation of congestion after death.

Dr. W. S. A. Griffith had exhibited this specimen particularly to emphasize the fact that closure of the uterine extremity of the oviduct was not necessary to the formation of a hydrosalpinx. He had examined several specimens of pyosalpinx,

hæmato-salpinx, and hydrosalpinx in different stages, particularly with reference to this point, and he had not met with a single specimen showing obliteration; on the contrary, the opposite condition, as in this case, was more frequently present. His observations were made by a series of sections through the whole length of the interstitial portion of the tube, and were not mechanical, as those recently published by Drs. Ballantyne and Williams. He had not found any evidence of special obstruction at the point of origin of the round ligament, as they had done. His observations also tended to convince him of the great improbability of a hydrosalpinx being converted into a pyosalpinx, though of course it was not impossible.

Report of Committee on Dr. W. Duncan's Specimen of Extirpated Uterus (p. 113).

The uterus has the following measurements :—Cervix, 1½ inches; entire length of uterus, 3½ inches; cavity of the body, 1½ inches; average thickness of uterine wall, 1 inch.

The endometrium is rough, arranged in longitudinal folds, but presents to the naked eye no marked growth.

A *microscopical section* of a portion near the fundus shows the enlargement to be due to hypertrophy of the muscular wall. The glands extend one-tenth of an inch into the wall; this part of the wall contains a large number of small cells. Numerous glands are cut across, some of which are two or three times larger than normal, and separated from one another by a considerable thickness of tissue, which is normal, except for infiltration with leucocytes. These glands present at most parts healthy columnar epithelium, and at some parts there are masses of cells apparently projecting into the lumen of the glands. The cells in these masses are regular in shape, resembling one another, and due probably to the columnar cells being cut across. In some few of the glands the basement membrane is not distinctly seen. The sections show evi-

dence of irritation and proliferation of the glands, but not indubitably of malignant nature. The general enlargement of the uterus is due to hypertrophy of the muscular wall.

William Duncan.
Walter S. A. Griffith.
S. W. Wheaton.
G. E. Herman.

ELECTION OF M. TARNIER.

The President read the following communication from M. Tarnier:

"15, Rue Duphot, Paris;
"Le 17 Avril, 1891.

"A Monsieur le Président de la Société obstétricale de Londres.

"Monsieur le Président,

"C'est un grand honneur pour moi d'avoir reçu le diplôme si envié de Membre honoraire de la Société obstétricale de Londres.

"Je vous prie de bien vouloir remercier de ma part les Membres de la Société obstétricale du titre qu'ils m'ont conféré.

"Veuillez agréer, Monsieur le Président, l'assurance de mes sentiments de très haute considération.

"Dr. S. Tarnier,

"*Professeur de Clinique obstétricale, Président*
"*de l'Académie de Médecine.*"

TETANY IN PREGNANCY.

By W. R. Dakin, M.D., B.S.,

OBSTETRIC PHYSICIAN AND LECTURER ON MIDWIFERY TO ST. GEORGE'S HOSPITAL.

(Received September 8th, 1890.)

(*Abstract.*)

The author gives a brief definition of tetany or tetanilla, and then describes a case at length. This case, in addition to the fact that it was an instance of a very rare disorder of pregnancy, had the peculiarity that the spasms never completely relaxed during the three days of the disease. The contractions were accompanied by, and were probably due to, very severe vomiting, while the two diseases combined led to a fatal issue, in which the tetany dealt the final blow by involving the muscles of respiration.

The author then, from the few recorded instances of the disease during pregnancy, constructs a typical case, with which he compares the case detailed in the paper.

The differential diagnosis between this disease and other spasmodic affections which might be confounded with it (tetanus, hysteria, spinal meningitis, uræmia, one form of epilepsy, and ergotism) is discussed, the treatment briefly referred to, and general conclusions drawn. A table of all accessible recorded cases is appended, and references given to authors who have treated the subject of tetany, generally, and in special aspects.

In the present paper an attempt is made to put together our available knowledge on this subject; and a case is described, as forming the text, in which the disorder was accompanied, and almost certainly caused, by vomiting, and where a fatal result ensued.

At the beginning it will be as well to give a brief

definition of *tetany* or *tetanilla*, as there is still in many minds, owing to the similarity of names, some confusion between this and *tetanus*.

Definition.—Tetany, then, is a tonic spasm, as a rule painful, which always begins in, and is often limited to, the muscles of the extremities, especially those of the hands. It may advance from these starting-points, and become almost universal. It is always symmetrical (when not artificially induced). It never causes loss of consciousness. Its attacks are intermittent and of short duration (five to fifteen minutes), and though they may recur daily or oftener over a long period, occasionally months, recovery is the rule.

The spasms are preceded by tingling or numbness, or both, in the extremities to be affected, and the same sensations follow relaxation. They have the peculiarity that during their intermissions they can be re-induced in a limb by compression of its main artery or nerve, being preceded by the sensory disturbances mentioned. This phenomenon is so constant that Trousseau regards it as a means of diagnosis. He also mentions as pathognomonic the fact that the contractions in many cases at once cease on the application of cold, returning when this influence is removed. The flexor muscles are those involved in the hands and feet, more especially the interossei. The temperature is not affected. The electric reaction of the peripheral motor nerves is qualitatively as well as quantitatively altered, according to Gowers and others. Excitability is much increased. The order of contraction in tetany is A.C.C., A.O.C., C.C.C., C.O.C., or sometimes A.O.C., A.C.C., C.C.C., A.O.Te. (Gowers), the normal order being C.C.C., A.C.C., C.O.C., A.O.C.*

* In these formulæ the *first* letter shows which pole is on the muscle or nerve supplying it. A=anode or + pole. C=cathode or − pole. The other pole is placed on the spine or somewhere on the nerve-trunk in question, between the spinal cord and the pole named. Thus A means an upward, C a downward current.

The *second* letter shows the condition of the current. C=closure of

Mechanical stimuli are also very marked in their results, and the act of drawing a finger across the face of the patient, or tapping the facial trunk just in front of the ear, is sufficient to cause contraction of the facial muscles.

The disease is generally sporadic, but occasionally epidemic. It is not an uncommon disease in children, in whom it is much more frequently seen than in adults; especially if, as I believe, following Fagge, the carpo-pedal contractions of ricketty children are examples of it.

It is a rare disease in adults, at least in Great Britain, and here it is practically limited to women, who are liable to it between the ages of twenty and forty (Gowers), roughly during the child-bearing period. Of forty-four cases noted by Trousseau, forty occurred in nursing women, and he first described the complaint under the title "contracture des nourrices." It occasionally occurs in pregnant and menstruating women.

Transient albuminuria (Kussmaul) and glycosuria (Stich) have been observed.

Tetanus is mentioned by most systematic writers on obstetrics as being a rare puerperal disorder in temperate climates. Tetany is spoken of by none but Spiegelberg, who dismisses it in one line, and does not even allude to its occurrence during pregnancy. Wiltshire makes an obscure and unsatisfactory reference to it, and I venture to think fails to grasp the distinction between it and tetanus. I therefore considered, when my attention was directed to the subject by a case I was fortunate enough to see in the practice of Mr. Harvey, that this disorder

circuit, *i. e.* moment current is beginning to pass. O = opening, *i. e.* moment current is cut off.

The *third* letter points to the result. C = contraction of muscle. Te = tetanus (physiological).

So A.C.C. = anode on muscle; circuit suddenly made; contraction.

The first formula in a series indicates the condition under which contraction is obtained with the weakest current. As this is strengthened contraction occurs under other conditions in the order given.

might well be considered in a short paper at the same time that the case was described. This had an unusual course and termination, and was, I thought, worthy of record. I am much indebted to Mr. Harvey for the notes that he, appreciating the nature of the case, had made, and for permission to use them.

I propose, first, to describe the case at length; then to compare it with the typical run of such cases, generalised from all those to which I have been able to obtain access; to mention the symptoms in which tetany differs from several other diseases which might be mistaken for it, namely tetanus, spinal meningitis, hysteria, uræmia, a form of epilepsy, and the obscure condition which has been put down to ergotism; briefly to refer to the opportunities for treatment, and then make a short summary. Appended will be found in a tabular form an account of all the cases I have been able to find recorded.

Case.—Mrs. N—, aged 35, married five years, and in her fourth pregnancy, had borne three children alive, the youngest being eight months old. She had had no miscarriage. She was an eighteenth child, and all her brothers and sisters died in infancy from causes unknown to her. She was said never to have had any hysterical symptoms, but always to have been of a nervous disposition.

All her previous pregnancies were normal except for severe vomiting at the third month in each instance, which became more aggravated in each succeeding pregnancy.

Being between three and three and a half months pregnant she began to vomit rather frequently during the day. This became more severe and repeated for two days, and then gradually ceased. On the fourth day from the commencement of this symptom she thought it had finally gone, but on the fifth day there was some recurrence, and on the sixth it was again severe, ceasing next day, and being absent during the eighth day. On the ninth she had a large dinner and went out afterwards, came home

and began to vomit again. Mr. Harvey then saw her and applied the usual remedies with no success. She was getting rather exhausted, and on the eleventh day it was found that during the night she had developed a condition of spasm of various muscles.

This spasm, which was continuous, was preceded by numbness in the extremities affected. Both hands and feet were in the position peculiar to tetany.

In the hands the thumbs were fully adducted, the wrists and metacarpo-phalangeal joints of the fingers were flexed, and the phalangeal extended (interossei). In the feet the ankles were over-extended (corresponding to flexion of the wrist), the soles were hollowed, and the phalanges extended as in the hands. In all the muscles affected there was slight pain. The knees and thighs were flexed, but were not the seat of spasm, yielding readily to voluntary efforts.

This contraction had extended to the elbows and knees by evening, and there was then great pain in attempting active or passive movements of the joints affected. There were no perceptible intermissions, though she said the joints were occasionally somewhat relaxed.

The vomiting was now very distressing, and treatment for this was unavailing.

On the twelfth day of vomiting (second day of tetany) the spasm had, in addition to the already affected muscles, spread to the shoulders, which were powerfully adducted, the pectoral muscles being very tightly contracted. She had an anxious expression, and Mr. Harvey thought he detected a tendency to risus sardonicus. The urine was very scanty, as might be expected from the vomiting.

In the evening of this day I saw her with him. I found her a thin recently-wasted woman, looking older than her age. She had a pained expression, and lay in a flexed attitude with the hands, arms, and feet in the position described. The spasm of the pectorals had relaxed, and the facial muscles were under control. She had rubbed her knuckles and the dorsal surface of her

toes into sores in her attempts to relieve the pain of the spasm, which had become severe. Sensation was very imperfect over the affected limbs; there was no œdema. Her tongue was very dry and brown, temperature subnormal, and pulse rapid and small (about 120). A catheter was passed and an ounce and a half of very high-coloured urine drawn off. This was free from albumen. I may say at once there was no albumen at any time while she was under observation. There was no jaundice.

On examining the pelvis, the uterus was found pushed forwards and raised by an enormously distended rectum. In the morning of the same day the rectum had not been full. The uterus was of the size of a three and a half months' pregnancy, and showed no abnormality. The vomiting had slightly improved, but she retched every few minutes and suffered considerable pain in doing so. She was not collapsed, only rather exhausted, and answered questions well and without difficulty.

It was agreed that the uterus ought to be emptied so as if possible to arrest the vomiting, but it was thought better that the rectum should be unloaded first, and an attempt made to improve the general condition, which was at that moment distinctly unpromising of a favourable result from any operative measures, by a few hours' stimulation and rectal feeding. A rectal dose of bromide and chloral was ordered to be given after an enema had emptied the rectum.

She passed the night with no alteration in her condition. The enema acted freely in the early morning of the following day (13th), but gave no relief to her symptoms. She became distinctly and rapidly worse immediately after and was evidently dying. No further treatment was therefore persisted in. The spasm had now extended further, involving, in addition to all the parts mentioned, the intercostals and the abdominal muscles. The diaphragm was unable to compensate for the complete fixation of the thorax, if, as is unlikely, it was unaffected itself. She was slightly cyanotic and covered with a

profuse cold sweat. There was now well-marked risus sardonicus, but no trismus. The tongue was bluish and dry. She gradually lost consciousness, and died of asphyxia and exhaustion at 2 p.m., on the third day of the tetany. Unfortunately, a post-mortem examination could not be obtained.

Remarks.—This case does not agree in all details with a typical instance of the disease. I think, however, no one will question the fact that it was an example of true tetany. It answers Trousseau's description of what he calls the second and third degrees of intensity. These are merely arbitrary divisions, but are convenient. I will just indicate them.

In the *first* or mild form, there are only *local* manifestations, spasm and anæsthesia, in the extremities.

In the *second* form *general symptoms* are added, namely, in a few cases, slight fever, malaise, and loss of appetite. Sometimes transient flushings and local œdema are present, and occur mostly in children. The spasms are more frequent, stronger, and more general, often involving the face and trunk, and occasionally the muscles of organic life. The mode of invasion is, as always happens in this disease, centripetal.

In the *third* and *grave* form the contractions are very prolonged, very frequently recurring and of great intensity. One patient he describes had "all his muscles in a state of violent contraction, and he was as stiff as a poker." Consciousness is never lost, however intense and widespread the spasms may be. Subjects of this degree of tetany may become intensely dyspnœic, and suffocation may seem imminent. In the intervals restoration appears complete.

One case died of asphyxia in the course of her first attack. This was the only case Trousseau had heard of in which the spasms caused death.

In Meinert's article a summary is given of nine instances, of which only four can be accepted, his own case making a fifth. They were all of the first degree and all

ended in recovery. In only one of the patients, his own case, had the neurosis occurred in more than one pregnancy. In three of the cases the patients were said to have been well up to the time of attack, but in the other two instances, one of them being his own case, the patients were ailing before. Case 4 (table) had had her thyroid gland removed, and Meinert's patient had suffered from considerable malaise and loss of appetite during pregnancy. He says that from this condition of appetite, &c., alone, she was able to predict the sex of the child, since it was present when she was pregnant with a female child and absent if the fœtus were a male. The attacks of tetany occurred in instances of the former kind.

It was observed by Trousseau that certain conditions such as nursing, menstruation, pregnancy, the puerperal state, teething, and, conspicuously, diarrhœa, all predisposed directly or indirectly to the contraction. (In one case obstinate constipation was a seemingly removeable cause.) Emotions, he considers, are direct excitants. In Dr. Herman's case, in addition to pregnancy, the patient was suffering from vomiting due to cancer of the pylorus. In my case the vomiting was that of pregnancy.

All these disorders have one result in common, and that is exhaustion to a greater or less extent (in pregnancy to a less extent certainly, unless there be some such complication as above mentioned).

Gowers points out that probably the grey motor cells of the anterior columns of the cord and medulla are the seat of the lesion.

From the recorded examples of the affection a typical case would be much as follows :

Typical case.—A woman in the middle months* of pregnancy begins to have weakness and stiffness in some of her distal joints. She has probably suffered or is

* Of 8 instances 1 was in the second month, 3 in the fourth, 2 in the fifth, 1 in the sixth, and 1 in the eighth. 2 were 1-paræ, 1 a 3-para, 1 a 4-para, 1 a 6-para, and 1 a 9-para. Parity of other two not mentioned.

suffering from some weakening disorder. Perhaps at once, or in a few hours or days, she is seized with symmetrical tonic spasms of the hands, which assume the position described in the case recorded here. Her feet may also be affected. This attack lasts 5—15 minutes. There is no loss of consciousness, or disturbance of cerebral or constitutional functions. The spasm is preceded, and its departure followed, by tinglings or numbness in the parts affected. Between the attacks the patient is normal to all appearance. The peripheral motor nerves all over the body, however, are abnormally excitable by electrical mechanical stimuli as mentioned before. In the limbs the typical spasm can be induced at any moment by compressing the main artery or nerve.

These attacks may occur once or oftener in the course of the day and night, or possibly may intermit for days or weeks, and the disorder may last for weeks or months, being more or less accessible to treatment. Complete recovery takes place if the case be one of the disease simply. There is no hastening of the day of labour.* The spasms cease on the uterus being emptied, or within a few days of this, if they have not done so before.

In the present case the course of the disorder was modified very gravely by the co-existence of vomiting, and this must be taken into account in all comparisons made with the typical case I have endeavoured to construct.

It would come, as I have mentioned, under Trousseau's second and third divisions, and its interest among cases of the same nature lies in the fact that: First, the spasms never intermitted completely, though they did vary slightly in intensity. There was in consequence no chance of eliciting "Trousseau's phenomenon," by compressing the main artery or nerve; and Secondly, the attack ended fatally after three days' duration, the mode of death resembling that in Trousseau's case alluded to above.

* If in any instance it has seemed that labour has been at all premature it has only been by a few days, except in a case described by Gauchet, which was bled.

Synoptical Table of Record

No.	Author.	Age.	Parity.	Months of pregnancy.	Premonitory symptoms.	Site of spasm.	Duration of disease in days.	Duration of spasm.	Frequenc
1	Gauchet	33	1	6th to 7th	Numbness in hands	Hands, wrists, elbows, feet, ankles, knees (trismus and dyspnœa later)	56	10 min. to several hours	Abou dail
2	Burresi	34	1	5th	Itching sensation	Hands, wrists, elbows, feet, ankles, knees	30	Few hours	Abou dail
3	Trousseau	21	?	5th	? (attacks induced by emotion)	?	?	?	?
4	Weiss	42	?	4th	?	Said to be "typical" (facial nerve irritability present)			
5	Meinert	32	3	2nd	Heaviness and stiffness of arms and legs	Hands (interossei only slightly); feet rather rigid on attempts at movement	200	Several hours	Dail
6	„ (same patient)	40	6	4th	„	„	150	„	Dail or often
7	Herman	30	9	8th	Tingling and numbness in hands	Hands, forearms, feet very slightly, and neck slightly	5	1 to 2 hours	Dail
8	Dakin	35	4	3rd	Tingling in fingers and toes	Hands, wrists, elbows, feet, ankles, knees; afterwards pectorals, masseters, facial muscles, intercostals, and (?) diaphragm	3	Continuous spasm during whole period	

ses of Tetany in Pregnancy.

sseau's sign.	Treatment and its effects.	Final result.	Effect of termination of pregnancy on spasm.	Effect of disorder on pregnancy.	Concurrent disease.	Reference.
?	Bleeding twice; no effect on disease	R.	Tetany ceased 2 days after delivery	Labour at 7th to 8th month; ? caused by bleeding	None	L'Union Médicale, 1860, No. 98.
Yes	Poultices, liniments, baths useless; bleeding followed by cessation (8 oz.)	R.	? (spasm ceased before delivery)	None	None	Gazetta Med. Italiana, 1856; ref. in Gaz. Méd. de Paris, t. xi (1856), p. 176.
?	?	?	?	?	?	Clinical Lectures, vol. i p. 374.
Yes	None. Spasms ceased on opening an abscess which formed after thyroidectomy	R.	? (ceased before delivery)	None	Patient had undergone thyroidectomy	Volkmann's Samml. klin. Vortr., No. 189, p. 22.
?	Drugs (? what) and electricity; no effect	R.	Ceased on delivery	Labour said to be 14 days premature	None	Tetanie in d. Schwangerschaft. Arch. f. Gyn., Bd. xxx.
Yes	Chloral and bromide steadily administered were followed by gradual disappearance of spasms	R.	None. Spasms occurred for 3 weeks after delivery	None	None (had atrophy of nails and cataract after)	„
No	Labour induced (cessation of spasm)	R.	Ceased at once	None as far as it went	Carcinoma pylori; subacute nephritis (autopsy)	Lancet, April 5th, 1890.
No pportnity of sting, as no terval	Treatment directed to vomiting only	D.	Died before labour	None	Pernicious vomiting of pregnancy (no jaundice)	Present paper

I will now consider the differential diagnosis between tetany in pregnancy on the one hand; and tetanus, hysteria, spinal meningitis, uræmic convulsions, one form of epilepsy, and a condition which has been described as due to ergotism, on the other. It will be seen that discrimination is fairly easy.

Differential Diagnosis.

1. *Tetanus.*—As far as frequency is concerned tetanus in pregnancy is perhaps almost as rare as tetany, judging from the small number of cases on record.

During and after labour at term and abortion it is well known to be much commoner, especially, as Dr. Playfair observed in the discussion in Wiltshire's paper, in hot climates.

Tetanus and tetany agree in the following points:

The appearance presented by the two diseases at any given moment *may* be almost identical, but if so it is only for a moment.

Both are spasmodic and painful affections of the muscles.

Either may be due to cold or unassignable cause (as idiopathic tetanus).

The two diseases differ in the following points, most easily seen in a table.

Tetany.	*Tetanus.*
a. The spasms begin in the extremities, advance centripetally, and cause the characteristic appearance of hands, &c.	*a.* The spasm begins in the muscles of face and neck (trismus), and advance centrifugally, with opisthotonos.
b. Spasms almost invariably intermittent.	*b.* Spasm always constant, with aggravations.
c. Due to depressing causes, and commoner in weakly women and children.	*c.* Usually due to traumatism, and commoner in the robust and in the male sex.
d. No pyrexia.	*d.* Temperature often raised.
e. Always a trifling disorder *per se.* Recovery spontaneous.	*e.* Almost universally fatal.

In a few cases of tetanus abortion has occurred after the trismus has lasted a day or two.

2. *Hysteria.*—In some cases of hysteria the spasms may closely resemble those of tetany, and the diseases may be confounded. With care, however, the diagnosis is not difficult.

Tetany.	*Hysteria.*
a. No cerebral disturbance.	*a.* Emotional disturbance constant, of various kinds, as unconsciousness, anæsthesiæ, convulsions, hypnotism, loss of speech.
b. Spasm always symmetrical.	*b.* Generally asymmetrical.

In the case of a patient in her first pregnancy whom I saw with Dr. Scarth last year, the spastic symptoms were very like those of tetany, but she was semi-hypnotic; and the tremulousness of the eyelids, and her power of recovering herself at any moment if quietly and firmly spoken to, left no doubt as to the diagnosis.

3. *Spinal meningitis* may arise from various causes, *e. g.* tubercle, gumma, malignant growth or other tumour, or septic infection :—and with these may be included compression symptoms.

In the earlier stages of this affection spasmodic attacks occur, and it will be understood that, according to the situation of the irritating lesion in the cord, will be the character and situation of the spasms.

This distinction is seen to be well marked. Thus there is in

Tetany.	*Spinal meningitis.*
a. No fever.	*a.* Fever, often considerable.
b. No paralysis.	*b.* Always paralysis, usually paraplegia.
c. No hyperæsthesia.	*c.* Hyperæsthesia intense (local as a rule).
d. No cerebral symptoms.	*d.* Usually combined sooner or later with cerebral meningitis, and symptoms of this are added.
e. No disease of spine.	*e.* Always some constitutional or local signs, suggesting or showing spinal affection.

4. *Uræmia.*—The convulsions in this case are attended with loss of consciousness, and the epileptiform nature of the attack cannot be mistaken. Albuminuria, if present, would practically settle the question, and really there is hardly any occasion to contrast the two diseases were it not that they have been mentioned as being confounded.

5. In exceptional cases of *epilepsy*, the *petit mal* assumes the form of a short muscular spasm somewhat resembling tetany. The duration of the attack, hardly ever more than 10—40 seconds, added to loss of consciousness, suffices to distinguish this from tetany.

6. *Ergotism.*—I mention this disease, as it is supposed to have afforded examples of spasms resembling those of tetany. Fagge, however, on the strength of an account by Wright in the 'Edinburgh Medical Journal,' came to the conclusion that the so-called ergotism was in these cases really an epidemic of tetany.

Pathology.—No morbid appearance in any of the nervous tissues has yet been identified as causing tetany. Although, among the few cases that have been fatal, vascular changes have been found occasionally, and in one or two cases some amount of softening, these are to be regarded as rather a result than a cause.

Treatment.—Wilks in his 'Diseases of the Nervous System' says, describing a case, that "as this is a disease which subsides spontaneously . . . . . little can be said of the merits of the remedies employed." In cases where the disease runs a typical course, little is needed beyond general treatment such as ensuring sleep, and reassuring the patient as to the harmlessness of the symptoms. Any possible cause, such as diarrhœa or vomiting, should at once be put a stop to. There is no reason why pregnancy should be terminated as a rule. In Dr. Herman's case the patient was in a very low condition from concurrent vomiting, and she had albuminuria. She was also so near the end of her pregnancy that the course he adopted was the wise one, and was justified by

the result. Out of the four recorded cases where labour occurred while the disorder was present, the spasms ceased on or soon after delivery in three. It was considered that induction of labour was the right treatment in the present case, and I now question whether it would not have been better to empty the uterus at once without waiting to improve the patient's condition. There would, however, only have been an hour or two gained, supposing the uterus had responded at once to any irritation.

The tetany on the second evening gave no indications for special treatment, the vomiting being the real disease to be attacked. This was almost certainly due to the presence of the fœtus, as the patient had suffered from this complication in all her former pregnancies. It would have been well to try to obtain some good sleep, as she only dozed occasionally. Meinert's patient had her sleep much disturbed by the onset of spasms, and the attacks of these gradually diminished in number and intensity on the exhibition of bromide and chloral in large doses daily; it is, however, open to Dr. Wilks's criticism.

Trousseau recommended bleeding, and mentions the very marked benefit it had produced in all his cases.

In view of our present knowledge this measure is certainly not indicated in any but a very few cases. Were I to mention the one condition under which it might be allowed, namely, when the spasm is affecting the muscles of respiration and is threatening immediate death, I should qualify the admission by saying that the inhalation of chloroform would answer every purpose and do much less harm; for obviously the only effect of bleeding is to remove the spasm at that moment in progress, and chloroform will do this without depriving the patient of something of which she will afterwards feel the want. It might have been of some temporary benefit to use the drug at the period of general spasm in the present case. Chloroform has been locally applied with the appearance of success.

Physostigma has also been used in children by Cheadle with doubtful success.

Conclusion.—In conclusion we may say that tetany pure and simple is an extremely rare disorder in pregnancy; that it is a somewhat startling though usually harmless affection; and that it hardly ever needs special treatment.

Should it be secondary to, or complicated with, other more serious disease, it helps very effectively to hurry the patient downhill, and may be the direct cause of a fatal result.

In these latter cases means for relieving both the spasm and the original disease should be adopted without delay; and, in the kind of tetany under consideration, if the graver disease, such as vomiting or albuminuria, be caused by pregnancy, or aggravated by it, the uterus should at once be emptied.

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ON A CASE OF DEATH FOLLOWING VAGINAL INJECTION OF ACID NITRATE OF MERCURY.

By John Phillips, B.A., M.D.Cantab., M.R.C.P.,
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(Received October 11th, 1890.)

The subject of the following paper was a married nullipara of about 25 years of age, who first consulted me for menorrhagia, dysmenorrhœa, and sterility in 1887. She had undergone many treatments previously for her complaint, among them being division of the internal os uteri. Under an anæsthetic I dilated her cervix and uterine cavity with Hegar's dilators, up to No. 16, and as there was a considerable amount of endometritis, I applied Linimentum Iodi freely to the interior.

The result of the operation was that her pain almost entirely disappeared, the menorrhagia ceased, and when I last saw her in November, 1889, she was still keeping well.

She became pregnant early in 1890, of which I was unaware until I was called to see her and found her in a dying condition. The facts which led to this were as follows: Finding herself pregnant between nine and ten weeks, and being at the time separated from her husband, she resorted to artificial means to rid herself of the products of conception. With this view, on a Saturday afternoon, about a tablespoonful of acid nitrate of mercury was injected into the vagina. She was seized with violent burning pain immediately afterwards, and only obtained temporary relief from two injections of morphia.

The same evening sickness began, and continued more or less to the close of her illness; morphia and cocaine injections were given to relieve the intense pain.

I did not see her until early in the morning of the following Wednesday. I found her lying on her back, with the knees drawn up, the abdomen tympanitic and tender; breasts enlarged and with well marked areolæ; face pinched and of markedly abdominal type. Her mental condition was cloudy, and the pupils contracted. The temperature was 102° F., and the pulse 112, wiry, but regular.

The stools became frequent and blood-stained within twenty-four hours of the vaginal injection, and now she was passing nothing but offensive dark-coloured blood, with no fæcal matter intermixed. The vomiting was incessant. The urine was very scanty, and passed involuntarily, so that the presence or absence of albumen was not ascertained; the breath was sweet; the tongue coated; no red line was discernible on the gums.

Per vaginam.—The mucous membrane was very acrid, hot, and tender to the touch. The whole of the upper two thirds, especially to the right and behind, appeared to be covered by a slough of a toughish consistence. A vaginal douche brought away some blood-stained flakes. The uterus itself was large, the os uteri soft and patent. These facts, in addition to what the patient herself told me, led me to conclude that she was about nine or ten weeks pregnant.

The morphia injections were stopped immediately, and free administration of carbonate of ammonia resorted to, but her condition became worse, the bloody stools continued, the vomiting increased, and, finally, the urine failed to be excreted, and she died within forty-eight hours of my first seeing her.

The post-mortem was made by Mr. Pepper forty-eight hours after death; the pelvic organs I showed at the October meeting, 1890.

The *bladder* contained some bloody urine, but there was

nothing in the organ itself to produce this condition. The blood evidently came from the kidneys.

Vagina.—The folds of mucous membrane and the roof were covered by a hardened slough.

The *cervix* was untouched, but there was some slight detachment of the decidual membrane, showing that abortion would probably have occurred had life been prolonged many more days.

The *uterus* contained a ten weeks' fœtus with its membranes intact. The right broad ligament, Fallopian tube, and ovary were very congested. A recent corpus luteum was found in the right ovary.

Rectum.—The mucous membrane of the whole of the large intestine and lower part of the small intestine was blackened, and in a state of superficial slough. Peritonitis had commenced, but was not due to any local injury of the peritoneum itself.

The kidneys.—The capsule peeled off easily, and was normal in appearance. Through the substance of the kidney there were congested patches and streaks, but no evidence of old disease.

Death had been caused by the poisonous effects of the mercury, and exhaustion from the continued bloody diarrhœa. No injury by instruments was detected in the vagina or about the uterus, so that absorption must have taken place from the vaginal mucous membrane alone. The mucous membrane of the stomach was quite healthy.

Remarks.—The selection of acid nitrate of mercury as an abortive is, I believe, unique, and when we consider that this solution contains nearly 50 per cent. of nitric acid, it is difficult to understand why such a violent escharotic was used at all, and especially in such a reckless manner. At the autopsy in the fresh state of the vagina the folds of mucous membrane indicated that the solution had acted most strongly on the edges of the ridges, and had not penetrated much into the grooves. The site of impact of the injection must have been to the right of the median line, and behind; this accounts for the well-marked

congestion of the vessels of the broad ligament, ovary, and Fallopian tube on that side.

The peritonitis was evident, but at first its cause was not so clear, as it had not commenced at the site immediately over the posterior cul-de-sac. I think the peritonitis was septic in nature, and that it was due to the absorption of septic material from the sloughy mucous membrane of the intestine.

The symptoms of mercurial poisoning during the progress of the case were many of them absent, the two which were present being the persistent hæmorrhage from the bowel, and the scanty and bloody urine. There was at no time fœtor of the breath, sponginess of the gums, or enlargement of the cervical glands. This condition was noticed in the fatal case reported by Dr. Boxall ('Obstet. Trans.,' vol. xxx, p. 315). A condition similar to that reported in this case has been found in many other fatal cases given by Dr. Dakin in his paper entitled "Mercurialism in Lying-in Women undergoing Sublimate Irrigation" ('Obstet. Trans.,' vol. xxviii, p. 290). There seems no doubt that the more extensive the laceration of the perineum or vaginal mucous membrane, the greater the dose of mercury which is absorbed. In Dr. Boxall's case the perineum was deeply lacerated, but in this case the mucous membrane was perfectly intact, and the solution introduced by an ordinary syringe.

Unfortunately the drug used in the case I have reported was not the perchloride of mercury, or it would have been extremely interesting to compare the actual amount of mercury injected during an ordinary vaginal douche of 1 in 2000 of the perchloride with that of an ounce of acid nitrate of mercury which contains 38·095 per cent. of mercury.

There is no doubt that morphia is contra-indicated in mercurial poisoning. In this case the patient had had several injections subcutaneously; these I discontinued on first seeing her, and substituted free administration of carbonate of ammonia.

Dr. Boxall thought that it was hardly fair to say that in the present case no wound existed. The preparation of mercury was used in such a way as to produce an eschar. In the situation of the slough, absorption would probably take place more actively than over the rest of the surface where the mucous membrane was intact. The reasons for this were that the mercurial salt entering into combination with the albumen was first precipitated, and, so to speak, "fixed," but subsequently became gradually dissolved and rendered soluble. In that state it readily passed through the damaged subjacent mucous membrane, and gained entrance into the system. Absorption, though to a less extent, by intact mucous membrane was not impossible, as occurred in a case (which Dr. Boxall had already recorded) in which repeated mercurial douches were used for some days, and symptoms of mercurialism appeared prior to the onset of labour. The case related by Dr. Phillips lent emphasis to a fact which had scarcely received sufficient attention, that when introduced by means of the genital passage, a mercurial overdose almost invariably made its presence felt by abdominal pain and diarrhœa, with tenesmus and the presence of mucus and blood in the stools, and very rarely by such symptoms as salivation, tenderness, sponginess, and bleeding from the gums, or loosening of the teeth, as when an overdose was given by the mouth.

SEQUEL TO THE CASE OF ANTERIOR SEROUS PERIMETRITIS SIMULATING OVARIAN SARCOMA.*

By Alban Doran,

SURGEON TO THE SAMARITAN FREE HOSPITAL.

(Received January 23rd, 1891.)

The patient died in August, 1890, three years and two months after the exploratory incision was made, which proved that the disease was not malignant. At the time of the operation, it is true, the vascular yellow substance into which the knife passed looked like sarcoma-tissue. The patient, however, not only made a rapid recovery, but the fluctuating tumour disappeared. I considered that the after history contra-indicated tubercular disease of the abdominal or pelvic viscera. Mr. Thornton believed that the case would probably turn out to be tubercular. He had met with several apparent cures from exploratory incision in like cases. I admitted that my own arguments against the tubercular theory were inconclusive. Were the theory absolute truth, I added, the morbid condition must be termed anterior serous tubercular peritonitis. The necropsy justified, though it did not prove, the correctness of this opinion. Tubercular disease existed. No fluid was found at the post-mortem, but the fluctuation in June, 1887, indicated the presence of a localised collection of peritonitic exudation at the time of operation.

Early in the spring of 1890 the patient became worse. I saw her several times at the Samaritan Hospital. She grew very tall, and in February was so weak that she

* 'Trans. Obstet. Soc.,' vol. xxxi, p. 217.

could scarcely walk. The period had never appeared since the exploratory operation. The tongue was bright red and very rough, the bowels irregular in action. There was slight resistance on each side of the cervix. No tumour could be felt in the abdomen, but there was universal tenderness on pressure. The patient became exceedingly cachectic and emaciated. I recommended her to remain at home at Bromley, Kent, where Dr. Ilott admitted her into the Cottage Hospital. He watched the case with great care, down to its fatal termination.

On August 25th, 1890, Dr. Ilott forwarded to me the following information: "For some weeks past the girl has been steadily getting worse, suffering from marked tubercular disease in abdomen and chest. I had her for a time in the Cottage Hospital with abdominal symptoms, signs of chronic peritonitis with thickening and tenderness over ascending colon, diarrhœa, vomiting, regular hectic temperature, the chart showing a regular ascent of two or three degrees every evening. She improved somewhat and gained flesh a little while there. After her return home, pulmonary symptoms developed, cough, rapid emaciation, night-sweats, aphthæ in mouth, purulent, stringy expectoration, and œdema of legs, the end coming yesterday, August 24th.

"Post-mortem examination, August 25th, 5.30 p.m. *Body* very emaciated, œdema of feet and legs; cicatrix of operation-wound midway between pubes and umbilicus. *Abdomen:* Omentum adherent to brim of pelvis and to peritoneum. Capsule of liver adherent to parietal peritoneum. *Liver* enlarged, no tubercular deposit. *Kidneys* healthy. *Intestines:* Coats of large intestines thickened with tubercular deposit. Cæcum adherent to right ovary. Intestinal lymphatic glands (mesenteric) enlarged, some undergoing caseous change. Scattered tubercles on visceral peritoneum of small intestine. *Pelvic organs* matted together, removed *en masse* with much difficulty, being generally adherent and intermixed with enlarged sacral and pelvic glands. Both ovaries much enlarged and

converted into cysts filled with dirty yellow pultaceous material.

"*Thorax*: Both lungs extensively and generally adherent by very firm adhesions, both full of tubercular deposits, mostly grey miliary tubercle, but some larger deposits undergoing softening, and yellow on section. *Pleura* thickened, no vomicæ. Heart small, pale, collapsed."

At the same time Dr. Ilott forwarded the pelvic viscera preserved in spirit. I dissected these structures, which I now exhibit (Mus. R. C. S., Pathol. Ser., No. 4566A).

In the course of the dissection I took the following notes: *Vagina* capacious, rugæ not well-marked. Vaginal portion of cervix very short, os elliptical, half an inch in transverse measurement. *Bladder*: Cavity two and a half inches vertically, and two inches horizontally, when not stretched. No thickening of mucous membrane or muscular coats. No sign of tubercular disease of mucosa. Left ureter normal. Right cut short close to bladder, the stump seemed healthy. *Urachus* very stout, patent behind umbilicus.

Omentum adherent to serous coat of fundus of bladder. Douglas's pouch completely effaced. A fluctuating body occupied the space between the rectum and bladder, at the site of the fundus uteri (this body proved to be the left tube). To the right, closely adherent to the cæcum, was another fluctuating body; this proved to be the right tube. It should here be noted that there was no evidence that the left tube was ever adherent to the abdominal walls. The right was firmly bound down to the pelvic structures. The spongy tissue into which I cut freely in 1887 could not have been either tube-wall or omentum. That peritoneal process was found thin and normal in appearance at the necropsy.

Uterus laid open from behind. It measured an inch and five-eighths from the os externum to the fundus; the cervix was seven-eighths of an inch in length. The

endometrium was rough, pulpy and dark-coloured (post-mortem change ?). The wall of the body of the uterus was half an inch thick midway between the fundus and os internum. The arbor vitæ of the cervix was well-marked. There was no evidence of former pregnancy.

Round ligaments stout and well-marked, they were completely concealed in adherent contiguous folds of peritoneum.

Fallopian tubes converted into two oval fluctuating cysts, as described above. The left, which was almost central in position, pushing the fundus to the right, measured two inches in its long diameter. The right measured an inch and a half. The inner surfaces of the tubes were deeply rugose, through exaggeration of the plicæ. The mucous membrane and submucous tissue were very thick. The muscular coat was thickened on the right side. A probe could be passed into both tubes from the uterus.

Ovaries reduced to small pultaceous masses which were intimately blended with the lower part of the walls of the tubes.

The *parametric tissue* was very thick and spongy.

My friend Mr. Targett, Pathological Curator to the Museum of the Royal College of Surgeons, wrote to me on October 15th, 1890: "I have examined the pelvic viscera sent up by Dr. Ilott, and sections are being made. The appearances to me are strongly suggestive of simple gonorrhœal chronic inflammatory changes about the tubes and ovaries. I do not think they are tuberculous. However, we will let the microscope decide, as far as that is possible. On reading up the history of the case in the 'Transactions of the Obstetrical Society' I see some of the authorities were in favour of tubercle."

On October 29th, 1890, Mr. Targett again wrote to me: "I have stained three slides," sections of the tubal mucosa, &c., "carefully with Neilsen's method, but no bacilli are to be found. I think the histological bears out the naked-eye examination and refutes the tuberculous

theory of the disease." I also examined the sections and detected no bacilli.

The nature of the original disease in this case is a subject worth consideration. The temporary relief undoubtedly afforded by the exploratory incision is also worth discussion.

There is suspicion but no positive evidence that the patient's troubles commenced with gonorrhœa. When her period ceased (never to reappear) in the middle of April, 1887, and she discovered that her abdomen was swelling, she suspected pregnancy, and admitted to her mother that she had frequently had connection with a youth of about her own age. Before the operation the vagina was very capacious and the rugæ effaced. There is no evidence, however, that she contracted gonorrhœa. That disease is usually severe in young girls, and this patient was in the habit of telling everything about herself to her mother. No discharge was ever noted until after the operation.

Nevertheless, it is possible that the disease existed and was overlooked. Gonorrhœa may prepare the parts which it attacks for the easy invasion of tubercle. Bumm of Würzburg has shown that the gonococci in orchitis damage the epithelium of the epididymis and prepare the way for the bacillus tuberculosis. A similar phenomenon may occur in the female organs.

The probability of primary tubercular disease of the tubes is far greater. When the operation was performed there were no symptoms of tubercular phthisis, the immediate cause of death. Chronic peritonitis existed, and its source probably lay in the genital tract. Cohnheim, Verneuil, and others have given reasons for believing that coitus with a tubercular subject may cause tubercular infection, especially where there is a predisposition. Now there was a strong family history of tubercle in this case. Indeed that fact allows us to dispense with any theory of infection by coitus as a necessary condition. In a subject predisposed to tubercle primary disease may begin in the

tubes. Pozzi* observes that the mucous membrane of the tubes, rich in folds and never shed periodically, like the endometrium, can readily receive and foster germs. The endometrium is protected from tubercle bacilli by its intense vitality and by its periodical exfoliation and renewal. The vagina is protected from germs of the more noxious varieties by its thick pavement-epithelium, and perhaps also by the agency of numerous non-specific germs which it habitually shelters. Verneuil insists that there is no homology between the conditions under which the bacillus tuberculosis develops and thrives, and those which favour the life and action of the gonococcus. The bacillus tuberculosis is anaërobian and develops best at great depths, as in the mucosa of the tube. The gonococcus attacks the first part of the genital tract that it touches.

Local tuberculosis, in males as well as in females, may lie latent for long periods, within false membranes and inspissated pus. Pozzi observes that this is especially the case with the tubes, and under these conditions it may be impossible to discover the bacilli, which are, no doubt, destroyed after a time, although the tubercular nature of the seat of disease is clearly demonstrated by the sudden appearance of an acute miliary eruption either in the lungs or in the meninges. The history of old foci of tubercle in the bones or in the joints furnishes the surgeon with numerous homologous examples.†

No tubercular bacilli could be detected in this case, but

* 'Traité de Gynécologie Clinique et Opératoire,' 1890.

† In the 'Trans. Path. Soc.,' vol. xxxvi, 1885, Drs. Chaffey and Quarry Silcock describe cases of tubal disease in children. Dr. Chaffey's patient was four years old, and died of tubercular phthisis and peritonitis. The Fallopian tubes formed two nodular masses, each about the size of a filbert. Dr. Silcock's was five years old, and died of cerebro-spinal tubercular meningitis. There was miliary tubercle in the lungs, and the uterus as well as the tubes contained much caseous material. No doubt the tubal disease was secondary in both these cases, yet it is quite conceivable that, in other cases, the patient less severely attacked by tuberculosis might recover for a time, the disease lying latent in the tubes.

the local disease was of very old standing and the specific germ is often absent under such conditions. The evidence gleaned from the necropsy proved that tubercle was widely diffused. In relation to this question of primary tuberculosis of the Fallopian tubes, two special points in connection with this case must not be overlooked, I mean the condition of the ovaries and the relation of the tubes to the substance cut into at the operation. The ovaries were reduced to small pultaceous masses, intimately connected with the walls of the tubes. This fact indicates infection from the tubes. The researches of Dr. Kelterborn of Dorpat* throw light on this question of ovarian adhesions. A series of experiments in which small pieces of parietal peritoneum and of the serous coat of viscera were snipped away or cauterised in animals, under aseptic conditions, all indicated that the wounds thus inflicted did not tend to contract adhesions. Dr. Kelterborn noted that the healthy wound left after the rupture of a Graafian follicle, on the surface of the ovary, did not adhere to the tube or intestines. He believed that when adhesions did occur, they very possibly arose from the wound of the follicle, but only after infection derived directly from the tubal canal. It is, at least, easy to understand how a tubercular tube may affect the adjacent ovary.

The post-mortem appearances did not indicate that the structure into which I cut at the operation was the wall of a diseased tube. Both tubes lay deep in the pelvis after death, bound down by adhesions and covered by intestine, far away from the anterior parietes of the abdomen. The simple incision which I made at the operation could not have set an adherent tube free, leaving no trace of itself on the tubal wall. On the other hand, the free discharge during convalescence may have proceeded from one of the tubes; escape of pus from a pyosalpinx has followed massage. More probably the discharge was due to endometritis.

* "Versuche über die Entstehungsbedingungen peritonealer Adhäsionen nach Laparotomien," 'Centralbl. f. Gynäk.,' 1890, p. 913.

From the above considerations it may be concluded that the patient's troubles began with tubercular salpingitis which set up tubercular peritonitis. This complication was relieved by the abdominal incision. But, after a time, the ravages of tubercle recommenced, the patient dying of typical pulmonary phthisis.

In the original paper I observed that the after-history contra-indicated tubercular disease of the abdominal or pelvic viscera. This statement was not entirely inaccurate at the time when the history was incomplete. I stated that tubercular peritonitis would hardly have undergone spontaneous cure under the circumstances. The truth was that that very affection existed, though in abeyance, when I read the paper. Afterwards phthisis set in, and the truth was at once revealed.

Lastly, there can be no doubt that the exploratory incision gave temporary relief. The patient's condition was bad, the local complication threatening. After the incision her general condition underwent a marked improvement, and the grave objective symptoms in the hypogastrium disappeared. There was undoubted fluctuation before the incision, and the bulk of the fluctuating swelling varied, so as to affect the measurements of the girth of the abdomen. A varying amount of exudation is to be expected in chronic peritonitis.

The knife passed into firm, spongy tissue of a dull yellow colour, which oozed freely. The peritoneum was incorporated with that tissue, which was most probably developed in the substance of that serous membrane. Dr. Ilott assisted at the operation and observed the yellow, spongy tissue. Three years later he made the post-mortem examination, and searched for that tissue, but it no longer existed. It was not omentum, as I suspected at the time, for, although that peritoneal process was found after death adherent in places to the parietes and to the bladder, it showed no signs of extensive disease, or of previous intimate incorporation with the parietal peritoneum. The abdominal walls were already quite

supple and free from any thickening when I examined the patient fifteen months after I made the incision.

The incision certainly promoted the absorption of the deposit, which brought about temporary relief. The fluid which caused the distinct fluctuation was slowly absorbed. Relief of a patient through a purely exploratory incision is not unknown.* Judging from my own experience, based partly upon my own work and partly upon the observation of a large number of operations performed by my colleagues at the Samaritan Hospital, this result is most marked where chronic peritonitis exists. Resolution of inflammatory products is apparently promoted by the incision. Hence the good results of this operation even in cases of disease of the ovaries and tubes.

In conclusion, I may briefly sum up the case by describing it as an instance of primary tubercular disease of the Fallopian tubes, in a subject predisposed to tubercle. The disease spread to the peritoneum, and caused great thickening, with a local collection of effused fluid, simulating a tumour. An exploratory incision into the thickened parietal peritoneum temporarily cured or relieved the peritonitis, the thickening and the effusion disappearing completely. After a period of comparatively good health the patient was attacked with phthisis, which caused her death. There was no evidence that the patient was ever pregnant, but it is just possible that the tubercular disease of the tubes was preceded by an attack of gonorrhœa.

Dr. Horrocks thought the absence of bacilli did not prove its non-tubercular character. It was well known that in true tubercle it was often impossible to find the bacilli.

* See also König, International Med. Congr., Berlin, 1890 ('Centralbl. f. Chirurg.,' No. 35, 1890), and an instructive paper by Dr. Parker Syms which appeared after I had prepared this communication, "The Influence of Laparotomy upon Tuberculosis of the Peritoneum," 'New York Medical Journal,' February 7th, 1891. The earliest case of the kind will be found in Sir Spencer Wells's 'Diseases of the Ovaries,' vol. i, 1865, p. 331. The patient, operated upon in 1862, is now (1891) in good health.

Dr. W. S. A. Griffith referred to cases recorded by Bernutz and Goupil in which pelvic inflammation was apparently connected with tubercular disease, and remarked on the apparent infrequency of this connection in England.

Mr. Alban Doran, in reply to Dr. Horrocks, stated that the patient had no evidence of pulmonary consumption when operated upon in 1887, but she undoubtedly died of phthisis, and the lungs were full of tubercle. The evidence of a circumscribed collection of serum was based entirely on inference, for no fluid was reached at the exploratory operation, and none found at the autopsy. Before the operation, however, fluctuation was very distinct and was detected by Dr. Griffith himself and other colleagues as well as by Mr. Doran. There was no evidence that the incision disseminated the tubercle. Mr. Doran had said nothing about the important researches of Bernutz and Goupil, as a full summary of previous works on tubercular pelvic disease was to be found in Pozzi's 'Traité de Gynécologie,' published six months ago.

JUNE 3RD, 1891.

J. WATT BLACK, M.D., President, in the Chair.

Present—29 Fellows and 2 Visitors.

Books were presented by Dr. H. F. Campbell, Dr. Galabin, Messrs. Adlard and Son, and the Boston (U.S.) Lying-in Hospital Staff.

J. A. Shaw Mackenzie, M.B.Lond., was admitted a Fellow of the Society.

The following gentlemen were proposed for election:—Edward Arthur Burgess, M.R.C.S. (Cricklewood); Lionel C. Everard Calthrop, L.R.C.P.Lond.; William Ayton Gostling, M.D., B.S.Lond. (Worthing); Alfred Maitland Gledden, L.R.C.P.Lond.; and Alfred Edgar Mayner, M.D.Montreal, L.S.A. (Kingston, Jamaica).

SPECIMEN OF ACARDIACUS ACEPHALUS.

By W. H. KELSON, M.D. (introduced by ALBAN DORAN).

LAST April, 1891, when I was called in to the patient, a primipara aged 25, the membranes were found protruding from the vulva, unruptured. The pains had lasted about three hours. The head was soon born, and followed by the

body of a small but apparently mature dead female fœtus. Its cuticle was exfoliating; there was no smell of decomposition.

After waiting for a short time, the lower extremities of a second fœtus were detected protruding from the os; these felt abnormal and peculiar. The knees were absent. On bimanual examination no head could be felt. The feet were easily brought to the vulva and examined. After about an hour, an acardiac fœtus was born with the aid of traction from below, hooking the fingers over the body, and pressure from above; the pains were very feeble. The placenta soon followed, and there was no post-partum hæmorrhage. The mother made a rapid recovery.

The photogravure illustrates the relation of the twins and their cords to the placenta.

The specimen was next taken to the College of Surgeons, where it was dissected. The following appearances were noted during the dissection.

Body forms a large flattened circular mass, with distinct hairy scalp on its upper part, and a pouch of flesh is present about an inch in diameter situated anteriorly, a little lower than the scalp. About an inch below it, in the middle line, is an ulcerated and thinned patch, where the integuments and deeper structures are fused and atrophied, so that there is an opening here into the peritoneal cavity.

Rudimentary external female organs, but no genito-urinary or anal orifice. The lower extremities are developed but ill-formed. Three toes on the right foot (1st, 3rd, and 5th), two toes on the left (1st and 5th). The vertebral column ends superiorly at lower cervical region.

Thorax.—Sternum and costal cartilages absent, ribs widely parted by a cleft.

Right pleural cavity very small, much encroached upon by an angular curvature of the spine; no right lung.

Left pleural cavity capacious, well defined, the pleura being complete. No left lung, no heart.

Right clavicle and scapula well developed; no humerus, nor any other bones of upper extremity. Left shoulder

Woodburytypegravure.

DR. W. H. KELSON'S CASE:

SHOWING TWINS, CORDS AND PLACENTA.

girdle defective; clavicle dislocated backwards and downwards, occupying the situation of the acromion. No scapula nor bones of upper extremity.

Peritoneal cavity.—A complete diaphragm discovered, and several coils of intestine. The small intestine begins above in a cæcal extremity, bearing a distinct mesentery and opening into a true cæcum, which bears a vermiform appendix. The large intestine lies entirely to the left, invested by a perfect mesentery, of which the parietal attachment runs vertically downwards. No trace of *liver* or *spleen.*

Right kidney large, one inch and a quarter long, lying in a very stout capsule; surface rather flattened.

Left kidney absent.

Supra-renal capsules appear to be fused; the right is the smaller and crescentic, the left much larger and horseshoe-shaped.

This specimen will be sent to the museum of the London Hospital.

ENDOMETRITIS POLYPOSA WITH BLIGHTED OVUM.

By Arthur H. N. Lewers, M.D.

This was passed by a lady, aged 29, who had been married about fifteen months.

She had been quite regular up to July 26th, 1890, when the last menstruation occurred. In August and September she "saw nothing." Since the third week in August she had suffered more or less from backache. There had been no morning sickness. Dr. Lewers saw her for the first time on September 5th. The uterus was very low down and retroverted; it seemed to be fixed. The size of the uterus could not be distinctly made out, but it was not much enlarged.

(There was a history pointing to pelvic peritonitis some four or five years previously, ascribed to playing in a lawn tennis match during a menstrual period.)

The backache continued, and a few days before October 17th there was some red discharge. On October 17th the pains increased, and the specimen now shown was passed.

It has the shape of the uterine cavity, and is somewhat flattened from before backwards; the outer surface is fairly smooth. The length is about three and a half inches; and breadth at the upper part about two inches and three quarters, and at the lower part about three quarters of an inch.

On opening the bag formed by the complete decidua vera, its inner surface is seen to be studded generally with prominences projecting about a quarter of an inch from their attachment. Most of the prominences are somewhat pointed; a few are blunt. Attached to the inner surface of the decidua, at its upper part, is a blighted ovum, consisting of amnion and chorion with luxuriant villi; but no trace of a fœtus can be seen.

I saw the patient about a month after the ovum came away; she had then regained her usual health. The uterus was still retroverted, and did not seem freely moveable. The secretion in the os uteri was healthy. There was no history of syphilis, nor any reason to suspect it.

CASE OF CONGENITAL AURICULAR SINUS; ABSENCE OF EXTERNAL MEATUS ON OPPOSITE SIDE; CUTANEOUS SINUS OVER SACRUM.

By Alban Doran.

Mr. Doran exhibited water-colour drawings taken during life from a child aged 3, by Mr. Burgess. They are now preserved in the Collection of Pathological Drawings at the Royal College of Surgeons.

The child was brought to Mr. Doran by its mother, who had been under his care. There was no sign of disease about the child when the drawing was taken. A small sinus, about a quarter of an inch deep, was situated in the most anterior part of the left helix, almost on the skin of the temple. It secreted a little mucus. A similar sinus, placed further back, is figured in Mr. Bland Sutton's 'Evolution and Disease,' chap. viii, fig. 93. In June, 1873, when house surgeon at St. Bartholomew's Hospital, Mr. Doran observed a case where an auricular sinus, one eighth of an inch deep, was placed in the same position as in Mr. Sutton's case, in the helix of each ear. The patient was a young man.

The right pinna in the same child was extremely deformed. It was crumpled up and rolled forward, consisting of an ill-developed helix joining a small tragus; a trace of lobule was present. There was no auditory meatus, and the patient was stone deaf on the right side. The internal and middle ear were probably undeveloped.

A small cutaneous sinus lay over the extremity of the sacrum, where it articulated with the coccyx. Perhaps it represented the unclosed extremity of the dorsal fold, which sometimes forms a simple "post-anal dimple."

The child died of measles in the autumn of 1890.

CERVICAL AURICLE.

By Alban Doran.

Mr. Doran exhibited a water-colour drawing taken during life from a child aged 5, by Mr. Burgess, and now preserved in the Collection of Pathological Drawings at the Royal College of Surgeons.

The patient came under the exhibitor's notice under similar circumstances as in the preceding case. From the skin over the anterior border of the left sterno-mastoid muscle projected a nipple-like structure, nearly three quarters of an inch in length. A substance like a flat, reniform cartilage lay under the skin, almost surrounding the base of the abnormal structure, which bore no duct or sinus.

The child was in perfect health.

MULTILOCULAR OVARIAN CYST AND FIBROMA (?) OF THE OPPOSITE OVARY.

By Peter Horrocks, M.D.

The specimens were fresh, having been removed from the patient on the same day by abdominal section. The cyst was the left ovary. The solid tumour was in Douglas's pouch, and was easily lifted out and removed. It appeared to be the right ovary. No other body like an ovary was discovered. The tumour was as big as a cocoa-nut and bony, with small bones on the surfaces of the larger ones. It was very hard, and cut like cartilage. The cut surface did not bulge in the middle, but remained flat.

BRAIN SHOWING THROMBOSES IN THE CEREBRAL VEINS AND HÆMORRHAGE INTO THE INTERNAL CAPSULE IN A CASE OF INGRAVESCENT HEMIPLEGIA DURING PREGNANCY AND PARTURITION.

By Peter Horrocks, M.D.

The patient was a 2-para, 28 years of age. In May, 1891, she had influenza, followed by pains in her head and vomiting. In a few days she became drowsy, and began to pass her motions under her. The pupils were equal, and there was no noticeable paralysis. The urine was clear, with no albumen and no sugar, but it ran from her continually. Heart-sounds normal. Pulse 100. Temperature not taken. Labour set in during the last few days in May, and progressed slowly. She was delivered at 2.30 a.m., June 1st, of a living child. She remained more or less unconscious, and the pulse, which was remarkably dicrotic, sank to 65 per minute. She was constantly moving her right arm and leg, but her left leg was quite motionless and flaccid; she could only move her left arm to a very limited extent. There was no difference in temperature, and the knee-jerks were present and equal. The left pupil was rather more dilated than the right, but neither of them was large. Respirations regular and good. She died at 9.15 a.m., June 2nd.

Post-mortem examination showed thrombosis of the veins of Galen (straight sinus also ?), and of the right temporo-sphenoidal vein and other cerebral veins. There was recent extravasation of blood into the posterior part of the optic thalamus on the right side, reaching as far forwards as the posterior part of the internal capsule. On the left side there was similar extravasation in the same

position, but much less in quantity. The extravasations had a punctated appearance. There was cystitis, and the right kidney showed general suppurative nephritis. The heart was healthy, and the uterus presented the usual appearances after recent delivery.

ON VISCERAL HÆMORRHAGES IN STILLBORN CHILDREN. AN ANALYSIS OF 130 AUTOPSIES; BEING A CONTRIBUTION TO THE STUDY OF THE CAUSATION OF STILLBIRTH.

By Herbert R. Spencer, M.D., B.S.Lond., M.R.C.P.,
ASSISTANT OBSTETRIC PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL.

(Received December 13th, 1890.)

(*Abstract.*)

The author gives a detailed account of a consecutive series of 130 autopsies on fresh, mostly stillborn, fœtuses, in so far as congestion of, and hæmorrhage into, the viscera are concerned. Appended are tables of the more important organs affected.

The main part of the paper consists of a description of the naked-eye and microscopic appearances of the various viscera as regards congestion and hæmorrhage.

The causation of the hæmorrhage is discussed, and the following practical conclusions are drawn:

1. In children stillborn, or dying shortly after birth, congestion or œdema and hæmorrhages are usually found in various important viscera.

2. These hæmorrhages occur in cases delivered naturally or by version or by forceps, through normal and abnormal pelves; in primiparæ and multiparæ; with large and small children; in "easy" and difficult, rapid and prolonged labours.

3. The hæmorrhages are, however, most frequent and most severe in children subjected to much pressure by the parturient canal or instruments or the hand of the attendant, especially when delivered by the lower extremity.

4. Cerebral hæmorrhage is more frequently found in stillborn children delivered by the forceps than in those born by the breech, and in these latter more frequently than in those born naturally by the head.

5. Hæmorrhage into most of the other viscera is more frequently met with in pelvic than in cephalic presentations.

6. These hæmorrhages and the accompanying injuries are in many cases the cause of the stillbirth, and, when not immediately fatal, may be followed by the gravest consequences.

7. They are most likely to be avoided by preventing premature rupture of the membranes, by artificial dilatation of the parturient canal (when necessary), by restricting the employment of version and other artificial manipulations to urgent cases, and by preferring cephalic to podalic version in cases suitable for the former.

8. The use of the forceps should be absolutely limited to cases in which there exists some pressing danger to mother or child, and it should never be employed merely to shorten the time of labour.

9. In breech presentations, examination of the genital organs of the child should be carefully avoided during delivery. As soon as the child's limbs are born they should be wrapped in a thick layer of antiseptic wool (which keeps the child warm, and prevents the hand from slipping, and protects the limb from pressure). If traction be necessary, it should be made over wool wrapped around the child's limbs or pelvis; it should never be made by the hand around the child's waist.

10. In delivering the after-coming head, care should be taken that the sterno-mastoid muscles are not unduly stretched or pressed upon. When the after-coming head is in the pelvis, and there is even slight difficulty, resort should be had to the forceps to deliver.

Introduction.

From the 1st of August, 1887, to the 1st of June, 1890, 6088 women were delivered under my care in the outdoor Maternity Department of University College Hospital. I have made autopsies on all the children born "still" during that period, with the exception of a few cases in which I was unable to obtain the parents' consent. I have also examined the bodies of twenty-five children which lived only a few hours or a few days.

The total number of bodies examined is 180. Of these exactly fifty were in a more or less advanced state of intra-uterine maceration, and, while interesting from other points of view, have little bearing on the object of this paper, and are not included in it. The paper deals with the remaining 130 fresh fœtuses.

I am personally responsible for the whole of the work —post-mortem examinations, microscopic sections, and drawings. The plan of the present paper is—

Part I.—An epitomised account of each case in so far as congestion, œdema, and hæmorrhage are concerned.

Part II.—Tables of the injuries (as shown by congestion and hæmorrhage) in various important viscera.

Part III.—A description of the injuries to the viscera based on the above.

Part IV.—A discussion of the causation of the hæmorrhages.

Part V.—Some practical conclusions.

It being impossible for me to attend every labour in a large out-patient practice, I have only been able to give the more important features of the labour. Most of the difficult cases have, however, been attended by me. With the exception of the spinal cord and the intestinal tract all the viscera were carefully examined in every case. When an organ other than the spinal cord or intestinal

tract is not mentioned in the Abstract (Part I), it means that no congestion, œdema, or hæmorrhage was present. No special notice is take in this paper of pericranial hæmorrhage and œdema.

Out of the total number of 130 autopsies, 78 were on male, 49 on female children; in 3 the sex is not given.

The presentation and delivery are given in 105 cases.

As natural head presentations were delivered		43 cases (5 of these were face presentations).
„ breech or footling presentations were delivered		26 cases.
As shoulder presentation (decapitation) was	„	1 case.
„ „ (*conduplicato corpore*) was	„	1 „
The forceps was employed to the head in	.	15 cases.
„ „ breech in	.	1 case.
Podalic version was employed in	.	13 cases.
Cephalotripsy „	.	7 „
Craniotomy for hydrocephalus was employed in	.	1 case.

Of the 43 cases which presented by the head, in 5 the presentation was a little doubtful, the child having been born before the medical attendant's arrival; the presentation has in these cases been inferred from the caput succedaneum. Of these 43 cases 5 presented by the face (one of these doubtful), of which 2 were anencephalous monsters.

Of the 26 cases presenting by the lower pole, in 5 (51, 56, 83, 126, 128) the legs were extended, and 4 were footling presentations.

The forceps was applied to the head five times for contracted pelvis, five times for tedious labour (once only was the head on the perinæum), three times for hæmorrhage, and twice for prolapse of the cord. The forceps was applied to the breech once, in a case of accidental hæmorrhage.

Version was employed seven times for placenta prævia, once for accidental hæmorrhage, once for contracted pelvis, once for prolapse of the cord and contracted pelvis, once for transverse presentation, once for shoulder presentation, and once for epilepsy in the mother.

PART I.—Abstract of Cases.

The following abbreviations are used:—Version = podalic version; hge. = hæmorrhage; cgn. = congestion; cgd. = congested; R. = right; L. = left; R.L. = right and left; M. = male; F. = female.

Case 1.—F., 5 lbs. 9 oz.—*Breech presentation; tardy delivery; much traction used; heart beating when born; insufflated; never spontaneously breathed.*

Conjunctiva cgd., especially L. side. *Liver* much cgd., black-red. *Kidneys* much cgd., especially at bases of pyramids, on the R. side more than the L., which shows what appear to be small hges. at bases of pyramids.

Case 2.—M., 5 lbs.—*A twin; transverse presentation; version; much traction; lived four days; was cold and blue till death from pneumonia, (?) caused by hge. into lungs.*

Stomach contains blood (? from lungs). *R. leg* much bruised (traction); hge. into the subcutaneous tissue; the deep veins of the leg normal; the leg was cold and almost black during life. *Lungs* large, heavy, deeply marked by ribs, solid at both bases, where they are black; at apices dark brown-red, less solid than at bases; frothy fluid exudes on squeezing. *Pleuræ* contain slight excess of fluid; pulmonary pleura opaque in patches.

Case 3.—M., 8 lbs., 22 in.—*Multipara; first vertex presentation; prolapse of cord; labour lasted fourteen hours; forceps applied three times; child dead ten hours before the last application.*

Head shows abrasions and bruises in several places on R. side. Hge. into coronal suture. *Liver* has hge. on upper surface of L. lobe beneath capsule. *R. supra-renal* cgd. *Lungs,* hge. (subpleural) R.L. *Testicles* cgd. *Brain,* hge. around base.

CASE 4.—F., 3 lbs. 12½ oz., 17½ in.

Lungs, red-brown or black-brown spots scattered over the surface beneath the visceral pleura except at apex. *Heart,* dark red subpericardial petechia at coronary sinus. *Supra-renals* both distended with blood-clot; the blood has burst through the left organ, and has spread behind the kidney. *Kidneys* much cgd.; hge. into L. kidney, appearing as red patches on surface, and on section seen to extend into cortex. Cgn. of bases of pyramids. Hge. also in cortex of R. kidney in shape of dark red streaks. *Liver* cgd. *Skull,* bloody serum over vertex; hge. under periosteum of R. frontal and L. occipital bone; vessels of *meninges* cgd.

CASE 5.—F., 4 lbs. 10½ oz., 17 in.—*Accidental hæmorrhage; version.*

There is a blue band a quarter of an inch wide round the thorax just below the middle (produced by cervix). Both arms are bruised. *Lungs* cgd., small hges. beneath visceral pleura. *Liver* much cgd. *Heart* has only two pulmonary and two aortic valves. *Supra-renals,* hge. into medulla. *Head,* isolated hges. (black) in cellular tissue of scalp; hges. under pericranium of frontal and parietal bones. *Meninges* cgd. Clear yellow fluid in *peritoneum and pleuræ.*

CASE 6.—M., 3 lbs. 8 oz., 17½ in.—*A second twin delivered conduplicato corpore.*

Peritoneum contains blood-stained fluid. Slight blood-staining at parts of visceral *pleuræ.* *Liver* generally cgd. On the upper surface of each lobe near the anterior edge is a hge. (black), raising up the capsule for one-fifth of an inch in thickness and three-quarters of an inch in area; the outer edge of each hge. corresponds to the costal margin. *Supra-renals* much cgd. *Kidneys* cgd. *Scrotum,* hydrocele on R. side with bloody fluid, both cords much distended; spermatic veins very full; slight hge. into R.

cord. Both *testes* black (microscope shows much hge., Pl. V, fig. 3, and Pl. VI) ; slight hge. into *epididymis*. *Head,* œdema of scalp ; a little black hge. on L. side of apex of occipital bone ; *meninges* cgd.

Case 7.—M., 3 lbs. 6 oz., 16½ in.—(*?*) *Breech presentation.*

Conjunctiva injected on L. side. *Liver* large, cgd., almost black in places. *Spleen* slightly cgd. *Kidneys* cgd., especially pyramids and at bases of these. *Supra-renals* slightly cgd. *Head,* no caput; slight bruising of cellular tissue over both parietal bones, the periosteum of which appears nearly black on each side of the sagittal sutures from hge. beneath it. Veins of *pia mater* of brain much cgd. Cgn. of Y-shaped ligament of hip-joint.

Case 8.—M.—*Cephalotripsy.*

All organs quite normal, pale, no cgn., no hge.

Case 9.—M., 1 lb. 13½ oz., 13½ in.—*Placenta prævia, version, extraction.*

Lungs slightly cgd. at thin edge of base. *Scalp,* much œdema and red fluid. Small hge. under pericranium. Slight hge. into cellular tissue of *leg and foot.*

Case 10.—F., 8 lbs., 21 in.—*Hydrocephalus, breech presentation, traction, supra-pubic pressure.*

Scalp, large quantity of blood-stained fluid escapes. *Pleuræ,* small quantity of blood-stained fluid ; a few ecchymoses on surface of *lungs,* especially at bases. *Heart* has ecchymoses along course of vessels, under visceral pericardium. *Abdomen* contains a large quantity of nearly pure blood, which comes from the R. lobe of the *liver,* which has been ruptured at its posterior part. *Supra-renal capsules,* R. ruptured, L. congested. *Kidneys* much cgd. ; subcapsular hge. in R. Hge. into *perinæum* and tissues of *labia majora. Head,* hge. under parietal pericranium ; none inside skull.

CASE 11.—F., 4 lbs. 15 oz.—*Accidental hæmorrhage; forceps (child probably dead before application).*

Head, abrasion on forehead (forceps), black blood in cellular tissue of scalp, also under frontal, occipital and parietal pericranium. *Brain* cgd., no hge. *Larynx and trachea* much cgd. *Lungs* much cgd.; subpleural hges. of slight extent, chiefly at bases and edges. *Thymus* cgd. *Peritoneum* cgd. *Pancreas* cgd. *Liver* cgd. *Supra-renals* slightly cgd. *Kidneys,* pyramids greatly cgd. *Uterus,* subperitoneal tissue cgd. *Fallopian tubes* cgd., especially at outer ends. Mucous membrane of *nasal fossæ* much cgd.

CASE 12.—M., 8 lbs., 21 in.—*Forceps.*

Bruise on R. side of *forehead* (forceps) and on L. side of *neck* (forceps); bruises on front of chest from injection of ether. Slight amount of bloody serum in caput, also under pericranium. *Brain* firm, vessels much cgd. on surface and in substance, small hge. at base, extending over *pons, medulla,* and *cerebellum; choroid plexuses* full, and contain a clot which extends to base of brain. *Liver* large, cgd. *Spleen* enlarged, much cgd., almost black. *Supra-renals* cgd. *Kidneys* much cgd., especially lower end of L., which is almost black. *Spermatic veins* much enlarged on L. side. *Scrotum* appears to be bruised.

CASE 13.—F., 3 lbs. 4 oz., 15 in.—*Twin of multipara, two hours in labour; second vertex.*

Lungs, lower lobe of R. much cgd., and exudes a bloody fluid; L. lung similar, but to less extent. *Liver* much cgd. *Kidneys,* slight cgn. at bases of pyramids. *Spleen* cgd.

CASE 14.—M., 8 lbs. 4 oz.—*Accidental hæmorrhage; forceps.*

Bruised patch on tip of nose (forceps), mark of blade on middle of brow. *Scalp* slightly thickened with blood-

clot. *Brain* cgd. *Kidneys* cgd., cortex mottled. *Liver* cgd. greatly on upper surface. *Spleen* much cgd.

CASE 15.—F., 6 lbs. 8 oz., 19½ in.—*Breech presentation; delivered, except head, half an hour before the arrival of attendant; head easily delivered.*

Finger-nails black. *Peritoneum* cgd., contains three drachms of clear yellow fluid. *Small intestine* and *rectum* cgd. *Stomach* shows the usual red specks on rugæ. *L. kidney* at its upper outer anterior part shows two greatly cgd. patches; on section at this spot it seems bruised. *L. supra-renal* greatly cgd., and there is hge. into its medulla. *Liver* slightly cgd. *Heart*, subpericardial hges. at apex, also at bases of large vessels. Hge. into thin edge of lower lobe of *L. lung*, subpleural hges. scattered over lungs. *Uterus* and *ovaries* cgd.; canal of cervix uteri congested for a length of one-sixth of an inch from external os. No œdema nor effused blood in scalp nor under pericranium; considerable cgn. of vessels on surface of *brain*, a slight amount of hge. has occurred; choroid plexuses much cgd.

CASE 16.—F., 4 lbs. 8 oz. (without head and neck).—*Neglected right shoulder presentation; decapitation.*

A few hges. of the size of a pea in the cellular tissue of *scalp*; no œdema. *Heart* has a small subpericardial hge. on the posterior surface of the base of the right ventricle. *Lungs*: R. weighs 360 gr., and is enormously cgd., solid and of a dark blue colour; L. lung weighs 150 gr., and shows on surface slightly congested patches, but is generally of a pale pink colour. *Liver* much cgd. right lobe, and there is a small subcapsular hge. on the under surface of this lobe. *Kidneys* cgd. at bases of pyramids.

CASE 17.—F., 4 lbs. 13 oz., 17½ in.—*Natural vertex, born half an hour before arrival of student; caul over head. Mother had had four children born naturally.*

Nails blue-black. *R. lung* has a subpleural hge. of

the size of a split bean at the base of the middle lobe. L. lung has a small subpleural hge. at thin edge of lower lobe. *Liver*, lower surface much cgd. There is a subcapsular hge. one quarter of an inch thick over the whole of the quadrate lobe. Between *R. kidney* and *R. suprarenal* is a hge.; hge. also appears externally at hilum of R. kidney. On section R. kidney shows hge. into hilum (Pl. III, fig. 2). Supra-renals not appreciably cgd. *Scalp* shows black blood effused into the cellular tissue at occiput; a considerable quantity of blood beneath pericranium. *Meninges* and choroid plexuses much cgd.

Case 18.—M., 1 lb. 12½ oz., 14½ in.—*Accidental hæmorrhage; vertex presentation; suddenly delivered naturally through cervix, which just previously was rigid and of the size of half-a-crown.*

Scalp very red and œdematous posteriorly, over occipital bone. *Brain* cgd. on surface; hge. beneath dura mater at occipital bone; hge. into *lateral ventricle* R. side, and some also on L. *Conjunctiva* reddened. *Larynx* and *trachea* slightly reddened. *Abdomen* contains much blood. *Liver* ruptured on under surface, there being a subcapsular hge. as big as a shilling; the surface of the organ appears bruised in other places. *Kidneys* slightly cgd. between cortex and bases of pyramids. Hge. into each *processus vaginalis* and *spermatic cord;* the hge. can be seen as a blue stain through the skin of the inguinal region.

Case 19.—M., 5 lbs. 12 oz., 19 in.—*A twin* (*with Case* 20), *born before the arrival of student.*

Scrotum and *tunica vaginalis* full of pale yellow fluid. *Lungs* cgd.; small petechiæ and hges. on surface and between lobes; the hge. is subpleural, and as thick as cardboard. *Kidneys* slightly cgd. at lower ends. *Liver* dark.

Case 20.—F., 6 lbs. 9 oz., 19 in.

Meninges of brain cgd. *R. pleura* contains a few drops

of red fluid. Great cgn. of lower edges of *lungs*. *Kidneys* are both slightly cgd. at bases of pyramids, where there are several small punctate hges. The *skull* shows a few patches of dark black-red blood under the pericranium, but scarcely any in the cellular tissue of the scalp.

Case 21.—M., 4 lbs. 11½ oz., 18 in.—*Born in the membranes twenty-five minutes before the arrival of student; said to have "fluttered" when born; ? vertex presentation.*

Liver enlarged, cgd. *L. kidney* cgd., especially at bases of pyramids; R. kidney has hge. into hilum, and a few drops of blood are effused into the cellular tissue behind the organ. *Dartoid tissue* œdematous. *Meninges* of brain cgd. at upper part of fissure of Rolando.

Case 22.—M., 6 lbs. 6½ oz. (without cranium and brain), 21½ in.—*Cephalotripsy.*

Marks of forceps blades on each side of cheeks; several marks also over right brow. All organs pale, no hge.

Case 23.—*Forceps; child lived seventeen days; was admitted into hospital for suppression of urine.*

Hge. into substance of *R. frontal lobe* of brain immediately under bruise produced by the forceps on the skin; the frontal bone at this part is very thin and depressible. Much hge. into *pyramids of kidneys* (Pl. III, fig. 3, and Pl. IV, fig. 1).

Case 24.—F., 4 lbs. 6 oz., 19 in.—*Lived four days; jaundice.*

The *spleen* is a little blacker than in the normal stillborn.

Case 25.—M., 2 lbs. 13 oz.—*Accidental hæmorrhage; fourth breech presentation; membranes ruptured (before the cervix was fully dilated); shortly afterwards the child was born with one strong pain.*

Scrotum swollen and dark red; œdema of dartoid; coagulated jelly-like material in each tunica vaginalis. *Testicles* black from hge. into their substance. Hge. also

into both *spermatic cords*. *Lungs* dark purplish red. *Kidneys* much cgd.; small hge. into connective tissue of hilum. *Spleen* cgd. *Brain*, hge. (slight) on surface of temporo-sphenoidal lobes; hge. at base of brain, around medulla, pons, and cerebellum. Medulla and choroid plexuses cgd. Black clot in *longitudinal and lateral sinus*. Slight hge. under *pericranium*.

Case 26.—M., 3 lbs. 10½ oz.

Hands and arms very blue; hge. into *muscles of arms*, none into cellular tissue. *Peritoneum* contains blood (from the liver). *Liver* has a hge. on upper surface of the size of a halfpenny; the capsule is ruptured. *Supra-renals* cgd., and slight hge. into medulla; no rupture. *Caput succedaneum* over posterior part of R. parietal bone. Slight hge. at *base of brain* (skull-bones very flexible). Hge. into each *processus vaginalis*. *Spermatic veins* slightly cgd. *Testicles* cgd.

Case 27.—F., 9 lbs. 5½ oz. (without brain).—*Cephalotripsy and embryotomy; a large child and contracted pelvis, with conjugata vera of three inches.*

L. lung bruised at upper lobe (crotchet). R. lung shows subpleural hge. at lower edge. *Liver* (12½ oz.) is bruised at upper surface, and there is a subcapsular hge., apparently produced by the crotchet.

Case 28.—M., 5 lbs. 10½ oz.—*Primipara, aged* 35; *slightly contracted pelvis; in labour twenty-four hours; low forceps; delivery took fifteen minutes; child lived one hour.*

Lips and *mucous membranes* blue. *Larynx* cgd. *Liver* much cgd.; on upper surface halfway between anterior and posterior edge, and just to right of suspensory ligament, is a subcapsular hge. of the size of a sixpence. *L. kidney* is much cgd. at bases of pyramids; considerable hge. into cellular tissue of hilum, which shows externally. R. kidney is cgd.; no hge. Œdema of *scrotum*. *Sper-*

matic veins full. *Caput succedaneum* over lower half of R. parietal bone. *Brain,* a small amount of hge. over surface of hemispheres, and one or two drachms over base of L. temporo-sphenoidal lobe and over pons and medulla; the skull-bones are very thin.

Case 29.—M., 5 lbs. 12 oz., 20 in.—*Natural vertex delivery; delay with body* (*circumference at lower epigastrium* 13 *in.*).

The *liver* is very large (8½ oz.), reaches down to iliac crest, and is cgd. On the upper surface of the L. lobe, just to the left of the point of entry of the umbilical vein, is a subcapsular hge., measuring an inch and a quarter across and a quarter of an inch in thickness. There is a smaller hge. to the right of the umbilical vein in the canal for the passage of the vein. There is a *bruise round the child's body* just below the ensiform cartilage; it is evidently due to compression of this part by the cervix, owing to the large liver. Hge. into cellular tissue of *scalp* over R. parietal bone and under pericranium. Cerebral *meninges* cgd. Thin edges of lower lobes of both *lungs* are bruised black (by cervix), and there is hge. into pulmonary tissue as well as beneath the pleura. *Kidneys and supra-renals* cgd. Œdema of *scrotum.*

Case 30.—F., 3 lbs. 3½ oz., 16 in.—*A twin* (*with Case* 31); *icterus; a natural vertex presentation; child lived four days.*

Legs and back of feet are hard and œdematous, no hge. Much yellow œdema (and some hge.) over upper and posterior part of R. parietal bone. The body of the child is generally pale.

Case 31.—F., 3 lbs. 4¼ oz., 16 in.—*Natural breech presentation; lived four days.*

Hge. from *nose.* Œdema of body generally and marked blueness (child was markedly cyanosed and cold during life). *Hands, legs, and feet* very blue and œdematous.

Nails blue-black; *eyelids* swollen, eyes healthy. *L. lung* solid, of slate-blue colour, of the consistence of liver, black-red on section, and evidently has much hge. into its substance; there are only *two* air-cells developed, and no petechiæ. The R. lung is a little larger than the L.; it is of a deep slate colour, but has a few more air-cells developed than on the other side. *Peritoneum* contains a little yellow fluid. *Pulmonary valves* redder than aortic. *Liver* has a hge. measuring one inch across and one-third of an inch thick on the upper surface of R. lobe beneath the capsule; there is a smaller hge. on both the upper and under surface of L. lobe. *R. kidney* cgd.; L. ureter is dilated to size of a cedar pencil; a little hge. behind each kidney. *Stomach* contains blood (? from lungs); in its mucous membrane are a few red spots looking like ulcers, of the size of No. 8 shot.

CASE 32.—F., 1 lb. 7 oz., 12½ in.—*A twin* (*with Case* 33); *natural vertex delivery.*

A little hge. in connective tissue of *scalp*, and some œdema of *meninges of brain*. *Lungs* and *trachea* cgd. *Liver* cgd. *Kidneys* cgd. at bases of pyramids, which are very pale. A little hge. into cellular tissue of hilum. *Supra-renals* cgd. Vessels at back of *uterus* much cgd., and there is slight hge. there. Vessels in front of uterus cgd. *Spinal canal* shows hge. outside theca, especially at nerve foramina.

CASE 33.—F., 1 lb. 12 oz., 13½ in. *Natural vertex delivery.*

Liver cgd. *Uterine veins* cgd. Hge. in pelvis of *kidneys*; cgn. at bases of pyramids. Hge. between dura mater and arachnoid of *spinal cord*; cord itself cgd.

CASE 34.—M., 4 lbs. 2½ oz., 17 in.—*Contracted pelvis* (*conjugata vera* 3 *in.*); *induction of labour; forceps; child lived two days.*

Intestines cgd. *Bases of lungs* solid. *Liver* cgd.; hge.

of the size of a split pea on the upper surface of L. lobe near the falciform ligament. *Supra-renals* cgd.; walls of L. separated by blood. Cgn. of *mediastinum testis*. Hge. and œdema in connective tissue of scalp at vertex. Considerable amount of hge. on surface of R. *cerebrum;* much at base on both sides. Hge. outside theca of *spinal cord* in dorsal and lumbar regions. Fracture of orbital plate of R. frontal bone (by forceps) ; a small hge. between dura mater and bone at this spot. [Diameters of child's head : Occipito-mental $4\frac{3}{4}$ in., occip.-frontal $4\frac{1}{4}$, suboccip.-bregmatic $3\frac{3}{8}$, cervico-bregmatic $3\frac{3}{4}$, biparietal $3\frac{3}{8}$, bitemporal $2\frac{5}{8}$, bimastoid $2\frac{5}{8}$. Diameters of mother's pelvis : Sp. il. $9\frac{3}{4}$, cr. il. 10, cong. ext. 6, cong. diag. $3\frac{1}{2}$, cong. vera 3 (by hand in pelvis).]

Case 35.—M., 6 lbs., $18\frac{1}{2}$ in.—*Child had imperforate anus and dilated descending colon; the girth of the abdomen was $14\frac{1}{2}$ in.; a natural vertex delivery; the cord was wound round the child's neck.*

Œdema of *dartoid tissue*. *Spermatic veins* much distended, especially on L. side. *Mediastinum testis* much cgd.; also great congestion of surface of testis. *Kidneys* cgd., especially L. Hge. into hilum of both; great congestion of bases of pyramids. *Supra-renals,* hge. into L., great cgn. of R.; no rupture. *Brain* cgd.; intense cgn. of substance of *medulla*. The *nails* are black, the face and *mucous membranes* blue (asphyxia). The *pancreas* is cgd.

Case 36.—M., 7 lbs., 21 in.—*Natural vertex delivery, born before the arrival of the student; two coils of the funis round its neck.*

Liver has a large subcapsular hge. on upper surface of L. lobe. *Testes* slightly congested. Hge. at base of *brain;* brain cgd. Vessels outside *spinal theca* cgd.; no hæmorrhage.

Case 37.—M., 5 lbs. $13\frac{1}{2}$ oz., $20\frac{1}{2}$ in. *Multipara; natural vertex presentation; born before the arrival of the*

attendant; the mother was syphilitic; the child died on the eighth day from tetanus and septicæmia starting from the umbilicus.

The *peritoneum* is injected. Pus in umbilical arteries and umbilicus very fœtid. *Lungs* cgd.; subpleural hge. *Liver* cgd. *Supra-renals* much cgd. Great cgn. of *mediastinum testis.* Cgn. of *brain;* no hge.

Case 38.—F., 7 lbs. 13½ oz., 22 in.—*Contracted pelvis; footling presentation; depression of R. parietal bone; some traction used to deliver; occiput rotated backwards.*

Skin dusky blue; *conjunctiva* cgd. *Nails* blue-black. *Liver* large (8½ oz.), no hge. The body of the *uterus* is much cgd., and there is hge. into its mucous membrane for a depth of about $\frac{1}{3\frac{1}{2}}$ of an inch. The subperitoneal vessels of the uterus are also cgd. Both *kidneys* are cgd., the L. especially so; hge. into hilum of both, especially L. Hge. into medulla of both *supra-renals;* in the L. it exists as isolated patches (Pl. V, fig. 2); the R. organ is converted into a cyst-like capsule filled with fluid blood. Small patches of hge. in the substance of *L. lung. Peritoneum* contains yellow, slightly blood-stained fluid (about ℥j). There is hge. into the *scalp* at L. temporal region; the skin of scalp is bruised over the depressed portion of the R. parietal bone; at this part also there is hge. between dura mater and the bone. There is also in this situation hge. on the surface of the *brain,* but no hæmorrhage on the other side. There is hæmorrhage at the base of the brain around the pons and medulla. *Spinal canal* shows hge. outside the theca, also in arachnoid; hge. or at least intense cgn. of the *anterior cornua* in lumbar region. Hge. beneath the pia mater in front of lumbar cord, and dipping into anterior fissure.

Case 39.—M., 4 lbs. 14 oz., 19 in.—*Natural vertex, born before the arrival of attendant.*

Hge. behind both *kidneys.* Hge. between *supra-renals* and kidneys. Great hge. into cellular tissue of hilum of

kidneys ; cortex slightly cgd.; pyramids hardly at all cgd. Much hge. into *supra-renals*. *Scrotum* red and œdematous. *R. spermatic cord* much cgd., L. not. *Mediastinum testis* cgd. *Lungs* much cgd., especially lower lobes ; petechiæ on surface of lungs ; one drachm of yellow fluid in each *pleura*. *Skull* very mouldable owing to wide sutures ; hge. under *pericranium* of posterior part of parietal bones. Hge. on surface of *temporo-sphenoidal lobes*, and at their base. Vessels outside theca of *spinal cord* cgd. ; no hge. outside or into substance of cord.

Case 40.—F., 6 lbs. 6 oz., 18½ in.—*A rapid delivery ; the nurse said it cried a little, and she "took a skin off its face."*

Blue *lips* ; bluish mammary areola. *Liver* (7 oz.) cgd. Vessels on surface of *uterus* a little full. Disseminated hges. in cellular tissue of *scalp*. Œdema of left side of *cortex cerebri*. Œdema fluid at *base of brain*.

Case 41.—F., 4 lbs., 16 in.—*Anencephalus ; face presentation.*

Two red tubercles of the size of a pea represent lobes of *brain ;* there is hge. into these. *Kidneys* slightly cgd. in cortex only. Both *lungs* greatly congested at bases and lower lobes ; in places they are almost black and solid : it appears as if the lungs had been greatly squeezed (? owing to the slight dilatation of the parturient canal by the small head). *Trachea* cgd. Vessels of *spinal cord* cgd.

Case 42.—M., 6 lbs. 8 oz., 21 in.—*Multipara ; natural vertex delivery ; cord tightly round neck and pulseless.*

Conjunctiva purplish. *Liver* slightly cgd. *Kidneys* slightly congested. Œdema and hge. into *scalp*. On L. side the lower anterior corner of the parietal bone is much depressed, and has caused, by pressure on the great anastomotic cerebral vein, hge. from its contributory vessels. Some fulness of *spinal veins*.

CASE 43.—F., 3 lbs. 14 oz., 17½ in.—*Child died six hours after birth.*

Kidneys slightly cgd. *Skull* flattened (from depression of L. parietal bone under occipital), sutures lax; considerable amount of blood effused at the upper part of both *hemispheres.*

CASE 44.—F., 7 lbs. 12 oz., 20½ in.—*Multipara; breech presentation; born as far as the head before arrival of student; cord pressed upon, pulseless.*

Hge. from *nose* (due to great cgn. of mucous membrane of turbinate bones, especially on L. side). *Peritoneum* contains some blood-stained serum. There is a bruise over L. side of forehead. *Liver* cgd.; cgn. of cellular tissue of hilum of *kidney.* There is much hge. on both sides of surface of *brain* and at the *base* (squamous suture very depressible); great cgn., if not hge., in *medulla.* Hge. outside theca of *spinal cord;* great cgn. of *anterior cornua.*

CASE 45.—M., 7 lbs. 12 oz., 21 in.—*Breech and footling presentation; the other leg was drawn down and some traction made; a good deal of traction was used to deliver head.*

Blue all over, especially legs; œdema of ankles. *Kidneys* slightly cgd. *Spermatic cord* cgd. (? hge.) *Testes* much cgd., R. almost black. Very extensive hge. over *R. parietal lobe* and at base; blood in fourth ventricle; the hge. at *base of brain* extends into upper spinal canal; clotted blood outside theca of *spinal cord;* veins on surface of cord cgd., and a little blood has escaped from them.

CASE 46.—F., 14½ in.—*Placenta prævia; sixth months child; version, extraction; craniotomy; rigid cervix.*

R. leg bruised, and hge. into its cellular tissue. *Liver* slightly cgd. at upper surface of R. lobe; subcapsular hge. of size of a bean on under surface of R. lobe. *Kidneys*

much cgd. both in apices (several black-red) and around bases of pyramids.

Case 47.—F., 4 lbs. 4 oz., 19 in.—*Placenta prævia; version followed by natural delivery, only slight traction being used to check hge.*

L. leg bluish and hard; slight hge. into its cellular tissue, also into *erector spinæ,* none into sterno-mastoid muscle. *Peritoneum* contains a little yellowish serum. Almost the whole of upper surface of R. lobe of *liver* is covered with a black hge., raising up the capsule (traction was made by right leg, the left being extended). *Kidneys* much cgd., especially the bases of pyramids; the cgn. extends some distance towards apices of pyramids; slight hge. into cellular tissue of hilum. *Supra-renals* cgd. *L. pleura* contains a little reddish fluid; both lungs cgd. at bases, the L. much more than R.; hge. into thin edge of base of *L. lung;* some Tardieu's spots. [Microscope shows thick layer of blood raising up pleura from thin edge of L. lung, and blood in alveoli and bronchioles, Pl. VII.] A little blood in *scalp,* no œdema. Great œdema of *brain* and *meninges;* no hge.

Case 48.—M., 4 lbs. 13 oz., 19½ in.—*Footling; natural delivery; cord pulseless on arrival of attendant.*

Parietal bones depressible below squamous part of temporal. Disseminated hges. in cellular tissue of *scalp,* little œdema. Hge. on surface of *hemispheres* (? caused by moveable parietal bones) and at base; blood in *R. lateral ventricle,* not in L.; no hge. in brain substance. *Scrotum* œdematous, bluish; *testes* much cgd., slight hge.; *spermatic veins* much cgd., and they pass up to a large hge. at the inner side of the hilum of each *kidney.* Extensive but thin hge. on upper surface of R. lobe of *liver,* beneath capsule; *supra-renals* much cgd. *Intestines* greatly cgd. Slight excess of yellow fluid in *pericardium.* Cgd. thin edge of lower lobe of each *lung,* especially L., which was black from hge. into its tissues. Hge. into arachnoid

of *spinal cord*. Hge. into right *sterno-mastoid* at its lower part. A good deal of hge. into muscles of lumbar region of back (? produced by cervix uteri gripping the child's body, both legs being down) ; also in *psoas*, and in muscles around the hip-joint.

CASE 49.—M., 6 lbs. 10 oz., 20 in.—*Placenta prævia ; version ; embryotomy for severe hge. in mother.*

The *liver* has a hge. on its upper surface beneath the capsule, probably produced by the finger introduced into the abdominal cavity. *Kidneys* and *testes* cgd. *Lungs* have cgd. edges. *Supra-renals* are full of blood.

CASE 50.—M., 2 lbs., 16 in. [Autopsy not complete.]

Hge. outside theca of *cord*. A small amount of hge. in *lateral ventricles*.

CASE 51.—M., 8 lbs., 20½ in.—*Impacted breech ; child breathed a few times.*

Blue bruises in each groin. *Scrotum* red and œdematous. R. *spermatic cord* œdematous. *Glans penis* cgd. Hge. into both *testes*, chiefly into R. A very little blood-stained serum in *peritoneum*. At the apex of *R. lung* is a dark portion of the size of the tip of finger, of the consistence of liver ; there is here hge. extending into lung-tissue. *Liver* much cgd. Bases of pyramids and cellular tissue of hilum of *kidneys* much cgd. ; no hge. *Supra-renals* very large ($1\frac{3}{4}$ in. × $1\frac{3}{4}$ in. × $\frac{5}{8}$ in.), cgd. No "caput." Posterior parietal bones are beneath occipital bone. *Meninges* cgd., especially beneath the posterior fontanelle.

CASE 52.—M., 7 lbs. (without brain), 21 in.—*Cephalotripsy ; head hard and well ossified.*

Liver cgd. ; a little bruising of upper surface. Pyramids of *kidneys* cgd. *Supra-renals* large ; the L. has its lower half distended with blood. Hge. into *spinal arachnoid*, most marked at lower end.

Case 53.—*A small fœtus* (*fifth month*). *It had bled to death in utero from a hole in a branch of the umbilical artery; the blood* (*about* ℥*iij*) *had collected between the chorion and amnion on the fœtal surface of the placenta.*

All organs bloodless.

Case 54.—M., 7½ lbs., 20 in.—*Contracted pelvis; prolapsed cord; version; considerable traction and suprapubic pressure.*

Child pale; slight bruising of skin above clavicles. Posterior part of upper surface of R. lobe of *liver* cgd. Scalp a little œdematous at vertex; hge. over apex of occipital bone one-eighth of an inch thick, also beneath the pericranium. Hge. all over surface of *brain* and around base; two minute hges. in floor of *fourth ventricle;* two red patches in *anterior cornua of upper spinal cord.* Hge. outside theca in lumbar region; much hge. under laminæ of upper cervical vertebræ; slight hge. in spinal arachnoid.

Case 55.—M., 6 lbs., 20 in.—*Umbilical hepatic hernia; imperforate anus.*

Liver cgd., especially hernial portion.

Case 56.—F., 5 lbs. 14 oz., 21 in.—*Breech with extended legs; twelve hours in labour; extraction.*

Labia majora and minora much bruised (blackish red). Hge. into cellular tissue outside vagina. *Cervix uteri* cgd. Mucous membrane of *body of uterus* very red; hge. into the subperitoneal tissue at the back of uterus. *Liver* cgd. Slight hge. into hilum and at bases of pyramids of *kidneys. Peritoneum* contains blood. Hge. into periœsophageal connective tissue. *Stomach* slightly cgd. at cardiac end; well-marked cgn. at *pylorus;* great cgn. of *duodenum.* Scarcely any œdema of scalp. Diffuse hge., moderate in amount, over both parietal regions of *brain;* a patch of blood of the size of sixpence over left temporo-sphenoidal region; hge. at base of brain. Hge. in cellular tissue

outside theca; *spinal veins* much cgd., especially posteriorly; *anterior cornua* cgd.

Case 57.—M., 6 lbs. 11 oz., 20 in.

Blood effused under nails. *Trachea* and *lungs* cgd. *Parietal pericardium* stained in patches with dark blood; visceral pericardium has patches of dark blood beneath it on the R. side of R. ventricle, in front over the interventricular septum, and on the surface of the pulmonary artery and aorta. The *mitral and tricuspid valves* are thickened with lymph, and there is hge. into this. Bases of pyramids of *kidneys* are much cgd. Fundus of *stomach* cgd.

Case 58.—M., 2 lbs., 15 in.—*Primipara; breech presentation; membranes prematurely ruptured; R. leg came through the os and was firmly grasped by the cervix; considerable traction employed to deliver.*

Larynx, liver, stomach, and *penis* cgd. The *lungs* are of a uniform pale Indian-red colour except at the apices of both lungs and at the base and edge of L. lung, where they are black; at these places there is hge. into lung substance. Congestion at bases of pyramids of both *kidneys;* about a drachm of dark fluid blood surrounds the L. kidney; the blood apparently comes from a ruptured small vein. The *R. testicle,* which is in the abdomen, has blood adhering to its lower end, and there is a large hæmatocele of the cord extending from the testicle to the bottom of the scrotum on that side (see Woodcut, p. 281). The *R. leg* and foot have hge. into the cellular tissue to a depth of one-eighth of an inch. *Scalp* slightly cgd. in places. Hge. into lambdoid suture.

Case 59.—M., 7 lbs., 18½ in.

Cgn. of *œsophagus, testes,* and *intestines. Stomach:* mucous membrane dotted with red points. *Peritoneum* contains a little yellow fluid. Spots of hge. in pericranium and sutures. Hydrocele of *tunicæ vaginales.*

Case 60.—M., $8\frac{3}{4}$ lbs., 21 in.—*Secundipara, aged* 34; *last child seven years ago; flat pelvis* ($3\frac{1}{2}$ *in. true conjugate*); *slight hydrocephalus; circumference of head above orbits* $15\frac{3}{4}$ *in.; occipito-mental diameter* $6\frac{1}{8}$ *in.; occipito-frontal* $5\frac{1}{8}$ *in.; biparietal* $4\frac{1}{2}$ *in.; forceps (two applications); version, strong traction; child just alive when born.*

Œdema of scrotum; *testes* cgd. Three forceps marks on *scalp*; deep bruising of skin over R. frontal bone; abrasion behind R. ear. A few hges. in *thymus*. *R. pleura* contains a drachm and a half of blood-stained fluid. *Lungs* generally cgd.; down the posterior surface of R. is a line of hge. $\frac{1}{4}$ in. wide; there is also hge. at under surface of R.; hge. into apices of both lungs. *Spleen* cgd.; ʒj of fluid in *tunicæ vaginales*. *R. supra-renal* is covered for a space of $1\frac{1}{2}$ in. × $1\frac{1}{8}$ in. by a layer of black blood which has escaped through a laceration in the capsule and its peritoneal investment. In the *scalp*, over both parietal bones, and over R. frontal bone is a thick layer of blood; hge. into R. temporal muscle. R. frontal bone is fractured immediately under the bruise in the skin (forceps), and the dura mater is congested beneath the fracture. There is also a fracture of the roof of the R. orbit, and the dura mater is filled up from the bone by ʒj of blood. There is hge. into *R. Sylvian fissure* and over both temporo-sphenoidal lobes. *Tentoria and falx* black with extravasated blood. About ʒij of blood-stained fluid in the *ventricles*. *Cerebellum* and *medulla* cgd. A drachm and a half of blood has escaped from the ruptured supra-renal into the abdomen.

Case 61.—M., 5 lbs., $18\frac{1}{2}$ in.—*Natural vertex presentation; child died convulsed three hours after birth.*

Head and face cgd.; nails black. *Liver* much cgd.; three small hges. on upper surface. *Spleen* much cgd.; hge. into it in places. *Kidneys* cgd. *Supra-renals* distended with fluid blood. Slight superficial hges. on surface of pulmonary artery. Slight hge. beneath pericranium of parietal bones (upper parietal bones very thin).

CASE 62.—F., 3 lbs. 8½ oz., 16½ in.—*Case of fœtal rickets.*

No hges.; organs pale.

CASE 63.—14½ oz., 10½ in.—(*?*) *Breech; traction.*

R. leg has blood effused into muscular planes; hge. into superficial and deep *muscles of left side of neck;* slight hge. into prævertebral (cervical) tissues. *Peritoneum* contains a small amount of bloody serum. *Liver* cgd.; a small subcapsular hge. on upper surface. Small subcapsular hge. at upper part of *L. kidney. L. supra-renal* cgd. *Spleen* cgd. *L. pleura* contains 3j of bloody serum; R. contains a few drops. *L. lung* much cgd., almost black, at base of lower lobe; this lobe is greatly cgd. throughout, contrasting very strongly with the salmon-coloured upper lobe. *R. lung* cgd. Large *caput succedaneum* over both parietal bones. Hge. in both *Sylvian fissures* of brain.

CASE 64.—F., 5 lbs. 6½ oz., 19 in.—*Vertex presentation; slight accidental hæmorrhage; os of size of half-a-crown, soft; bleeding recurring after three hours, the membranes were ruptured, and natural delivery occurred two hours later.*

Hge. from *nostrils. Liver* and *spleen* cgd. Petechiæ all over *lungs,* which are cgd. Hge. beneath pericranium of both parietal bones.

CASE 65.—F., 6 lbs. 13½ oz., 20½ in.—*Born alive; gave one or two gasps and died.*

One drachm of straw-coloured fluid in *R. pleura,* less in L. *L. kidney* is intensely cgd. (almost black) at lower end; the cgn. extends into the cortex; no hge. (R. kidney normal). *Duodenum* and *pancreas* cgd. Black clotted blood under the parietal, occipital, and frontal pericranium. *Uterus* intensely red at upper part.

CASE 66.—M., 6 lbs. 2 oz., 17½ in.—*The child was born*

alive, gave a few gasps, and died. It had greatly distended ureters and hydronephrosis.

The abdomen measures 14¾ in. in girth, and contains 3½ oz. of yellow slightly blood-stained fluid. Œdema of all the *subperitoneal cellular tissue*. Hge. beneath *peritoneum* over R. kidney in patches of the size of a bean. Œdema of scrotum. *Spermatic veins* on R. side much distended. *Pericardium* contains a little slightly blood-stained fluid. *Brain* intensely cgd. throughout; clot in choroid plexuses. *Cerebellum* intensely cgd., almost black on surface.

Case 67.—M., 4 lbs. 10½ oz., 18½ in.—*Multipara four hours in labour; vertex presentation; child born before the arrival of attendant.*

Nails black. *Liver* generally cgd. (almost black); two subcapsular hges. on surface of quadrate lobe. *Kidneys* cgd. at bases of pyramids. *Brain* much cgd.; no hge.

Case 68.—M., 6 lbs. 11½ oz., 20 in.—*Prolapse of funis.*

Liver large, cgd. (blackish red). *Pericardium* contains excess of fluid. *Kidneys, supra-renals, meninges* of brain cgd.

Case 69.—M., 5 lbs. 11 oz., 18½ in.—*Hemicephalous fœtus with cystic kidneys; prolapse of funis; the heart beat for half an hour after birth; footling; traction.*

Stomach contains half a drachm of blood (? from lungs); the mucous membrane is not cgd. *Duodenum* cgd. *Mediastinum testis* cgd. *Pleuræ* contain ʒj of blood; hge. into *L. lung* (weight ʒ 1¼) and lower lobe of *R. lung* (weight ʒ 1½). *Liver* cgd. *Spleen* much cgd. *Supra-renals* very small, ill-developed, a little cgd., not ruptured. *Brain* very small and ill-developed; hge. at base and on surface; hge. into lobes of *cerebellum* (which project externally for an inch and a half through the posterior fontanelle) and into *medulla*. Œdema and some hge. outside theca of *spinal cord;* hge. all over surface of cord.

CASE 70.—F., 6 lbs. 7 oz., 20 in.—*Lived four days; icterus.*

Kidneys and *supra-renals* cgd. A considerable quantity of yellow fluid escapes on opening *skull.* There is a large clot at the *base of the brain* and over the *temporo-sphenoidal lobe* of the R. side, and also over the *Sylvian fissure;* R. hemisphere considerably larger than L.

CASE 71.—F., 6 lbs. 1 oz., 18½ in.—*Mother had epileptic fits for two days before delivery; version followed by natural delivery fourteen hours later through a rather rigid cervix.*

Brain has several drachms of blood effused over its L. hemisphere. *R. hemisphere* much cgd. Hge. at *base of brain* and over *L. side of cerebellum. Supra-renals* much cgd.; slight hge.

CASE 72.—F., 3 lbs. ½ oz., 17 in.—*Placenta prævia; cervix widely dilated, soft; version; extraction half an hour later.*

R. leg bruised. Hge. into cellular tissue of *R. side of chest and of R. arm.* Œdema of cerebral *meninges;* considerable hge. on surface of *L. hemisphere.* R. clavicle broken.

CASE 73.—M., 3 lbs. 12 oz., 17½ in.—*First vertex presentation; child lived eight days.*

No cgn.; no hge.

CASE 74.—M., 6 lbs. 12½ oz., 27 in.—(?) *Breech presentation; child died, suffocated with membranes over its head.*

Marked blueness of L. side of face, of mucous membranes, and of nails. Cgn. of *conjunctiva. Scrotum* œdematous; *spermatic cord* cgd. Cgn. of *liver,* bases of pyramids of *kidneys, supra-renals, larynx, trachea.* No œdema of scalp; small hge. of size of sixpence in connective tissue over R. parietal bone. Great cgn. of *brain.*

Case 75.—M., 2 lbs. 4 oz.—*Twin* (*with Case* 76), *lived fourteen days.*

L. testis cgd. *L. spermatic cord* bigger than R.

Case 76.—M., 2 lbs. 4 oz.—*Twin* (*with Case* 75), *lived a few minutes.*

Extensive hge. all over surface of *cerebral hemispheres.*

Case 77.—F. (seven months child).—*Vertex presentation.*

L. supra-renal much cgd., walls slightly separated. *Kidneys* cgd. at bases of pyramids.

Case 78.—F., 5 lbs., 19 in.—*Multipara, aged* 19 ; *twelve hours in labour. Child died eighteen hours after birth, of* (*?*) *septicæmia contracted in utero ; vertex.*

Skin bluish, especially of face and front of abdomen. Nails blue-black. Bloody fluid in considerable quantity in *pericardium, peritoneum, pleuræ,* and *arachnoid.* Lower lobe of *L. lung* cgd. Much hge. into *hilum of kidneys. Supra-renals* full of bloody fluid. Hge. into cellular tissue around *uterus* and *ovaries.* Hge. into all the *sub-peritoneal cellular tissue.*

Case 79.—M., 6 lbs. 3 oz., 20 in.—*Contracted pelvis* (*true conjugate* $3\frac{3}{16}$ *in.*) ; *forceps.*

Skull compressible (occipito-mental diameter $5\frac{1}{2}$ in., occipito-frontal $4\frac{3}{4}$ in., suboccipito-bregmatic 4 in., bi-parietal can be compressed to $2\frac{7}{8}$ in.). There is a blister on L. cheek (forceps), forceps-mark also on R. cheek ; brush-burn over L. frontal eminence ; hge. into scalp over L. parietal bone and around and over the posterior fontanelle ; subpericranial hge. over foreparts of both parietal bones and the hinder parts of both frontal bones. A small effusion of blood at the *base of the cerebellum* and *around the medulla.* Hge. from *nose.* Œdema of *scrotum.* Petechiæ over *lungs.* Hge. in front of *supra-renals ;*

also into substance of organ and in cellular tissue between supra-renal and kidney. Cortex of *kidney* cgd.

CASE 80.—F., 6 lbs. 8 oz., 20 in.

Lungs, petechiæ and cgn. *Kidneys,* hge. into hilum and at base of pyramids. Hge. into *gluteus maximus.* Hge. on surface of *R. hemisphere* and beneath the pericranium.

CASE 81.—M., 6 lbs. 12 oz., 20 in.—*Spina bifida; hydrocephalus; child born before the arrival of attendant.*

Skull incompletely ossified. Blood effused all over surface of *R. hemisphere;* ʒij of yellow fluid in *lateral ventricles. Nails* blue-black. *Scrotum* red and œdematous. *Testes* almost black, can be pulped between the fingers, L. blacker than R.

CASE 82.—F., 3 lbs. 4 oz., 16 in.—*Primipara; second vertex presentation.*

Abdomen contains a few drachms of yellow fluid; œdema of wall. *Pleuræ* and *pericardium* have an excess of fluid. A small subscapular hge. on upper surface of R. lobe of *liver.* Bases of pyramids of *kidneys* cgd. L. *supra-renal* cgd. A few petechiæ on *lungs.* Hge. over both parietal lobes, and a considerable quantity at *base of brain.*

CASE 83.—M., 3 lbs. 1 oz., 16½ in.—*Accidental hge.; second breech presentation, legs extended; forceps; traction by finger in groin.*

Bruise in L. groin (traction). *Peritoneum* contains a small quantity of blood. Blood in each *tunica vaginalis;* œdema of dartoid and some hge.; hge. into *mediastinum testis;* R. spermatic cord thicker than L. *Liver* soft; on lower surface are several extensive, quite thin subcapsular hges.; on upper surface of R. lobe at the anterior edge is

a hge. of the size of a sixpence. Cortex of *L. kidney* greatly cgd. (R. normal); hge. into *L. supra-renal, R. supra-renal* slightly cgd. *Lungs* much cgd. at bases and thin edges; petechiæ. Subpericardial hge. at base of R. ventricle in front, and of L. behind. Scalp œdematous, and much blood is effused into it over lower part of occipital and left parietal bones; blood is effused in a thick layer under the periosteum of parietal, occipital, and frontal bones, especially on the L. side. Hge. on L. side of surface of *brain* and at base. Hge. into meninges of *spinal cord.*

Case 84.—M., 6 lbs. 11 oz., 20½ in.—*Prolapse of funis; forceps.*

Dusky mucous membranes and skin. *Nails* blue-black. Mark of forceps over L. parietal bone (skull very thin in lower parietal regions). Hge. in quantity over surface of *L. hemisphere* and at base, some also in R. side; hge. on upper surface of *cerebellum.* Hge. between spinal dura mater and cord; (?) hge. into *anterior cornua* of cervical enlargement. *Liver* cgd. Apices of pyramids at upper part of *R. kidney* black-red; whole of pyramids of *L. kidney* cgd. *L. supra-renal* cgd. Hge. (shown by microscope) into *mediastinum testis.* Œdema and redness of *scrotum.*

Case 85.—F., 1 lb. 11½ oz., 15½ in.—*Multipara; rigid cervix; accidental hæmorrhage; footling presentation; strong traction.*

Legs black. Black bruise on L. shoulder and on back. Hge. into *L. sterno-mastoid, temporal muscle, gluteus maximus, erector spinæ,* cellular tissue and muscles of legs, and cellular tissue of R. thigh. Œdema and hge. in scalp. Black subpleural and intra-pulmonary hge. at posterior border of *R. lung* and at thin edge of bases of both lungs, especially R.; ʒj of fluid in each *pleura. Liver* large, subcapsular hge. on upper surface of R. lobe; it has burst through the capsule into the peritoneum. Hge. into *great omentum.* Hge. into hilum of both *kidneys.* Hge. into

R. supra-renal. Much hge. on surface of *l. cerebral hemisphere* and at *base of brain* on both sides. *Spinal cord* cgd. ; hge. between dura and arachnoid.

CASE 86.—F., 6 lbs. 10½ oz., 20 in. *Natural vertex.* Face blue. *Liver* much cgd. *Fallopian tubes* cgd.

CASE 87.—M., 7 lbs. 2 oz., 20 in.—*Mother had secondary syphilis three months before this child was born.* Face dusky. *Abdomen* contains ʒij of bloody fluid. *Liver* cgd. *Kidneys* slightly cgd. Œdema of *scrotum.* Cgn. of *mediastinum testis* and beneath tunica albuginea. Very little hge. or œdema of scalp. Clear fluid at base of *brain ; meninges* opaque, cgd. Slight fracture (in direction of bony fibres) at upper part of L. parietal bone.

CASE 88.—M., 4 lbs. 10 oz., 17 in.—*Natural vertex ; secundipara.* Face blue ; some petechiæ. *Abdomen* contains a small amount of fluid. Hge. into *mesentery* all over abdomen. Black petechiæ on *lungs.* Hge. into hilum of both *kidneys. Testes* cgd. ; hge. into R. testis shown by several black apoplectic spots. *Brain* œdematous ; some blood-stained fluid on surface ; excess of fluid in lateral ventricles. (?) Hge. into anterior cornua of lumbar cord. *Liver* cgd.

CASE 89.—F., 5 lbs. 12 oz., 19½ in.—*Labour lasted eight hours ; membranes prematurely ruptured ; breech presentation ; delivery natural till shoulders were born, when the child gasped, and was delivered with difficulty by the midwife stillborn.* Body pale ; *nails* blue-black. Slight cgn. at bases of *pyramids.* Slight hge. into medulla of both *supra-renals* at upper part. Vessels of *uterus* and *Fallopian tubes* cgd. Hge. on surface of *brain* beneath the upper part of R. parietal bone. Hge. outside theca of *spinal cord.*

Case 90.—M., 5 lbs. 2 oz., 19½ in.—*Multipara, fourteen hours in labour; first cranial position; head long on perinæum; cord twice round neck; forceps.*

Face bluish; bruise over glabella, also in malar region (forceps). *Conjunctiva* cgd. *Kidneys* and *mediastinum testis* cgd. Head much elongated upwards and backwards; *caput succedaneum* over R. posterior parietal bones; a large hge. on R. side of surface of *brain*. Œdema of tissues outside theca of *spinal cord*.

Case 91.—M., 4 lbs. 8 oz. (eighth month), 18 in.—*Multipara, aged* 39; *five hours in labour; breech presentation, arms extended; extraction of head difficult; child's heart beat for twenty minutes, but the child never breathed.*

Scrotum and *buttocks* blue-black; hge. into cellular tissue and muscles of buttock and thigh; hge. into lower third of *R. sterno-mastoid*. Very little œdema of scalp; small disseminated hges. in cellular tissue just above the periosteum; R. posterior parietal bone is very thin ("egg-shell crackling"), and the bone can be easily indented by the finger to a great extent; hge. on the surface of the *brain* at the junction of middle and posterior thirds just outside longitudinal fissure; a large quantity of blood under the R. parietal bone where it is so soft. Small hge. under capsule of quadrate lobe of *liver*. *Kidneys* cgd. at bases of pyramids. *Supra-renals* cgd., slight hge. into L. Hge. into *testes*, dartoid tissue, and outside theca of *spinal cord*.

Case 92.—M., 2 lbs. 8 oz., 15¼ in.—*Syphilis in mother; breech presentation.*

Blue feet, red legs, blue left hand and forearm (bruised). Hge. into muscles of buttock and thigh. Small amount of yellow fluid in *abdomen*. Much œdema of *brain*. *Lungs* and *testes* cgd.

Case 93.—M., 11 lbs. 4½ oz., 22½ in.—*Multipara;*

occipito-posterior position; forceps (*child alive when forceps applied, but stillborn*).

A red bruise half an inch below L. eye. Body of a bluish-grey tint. *Conjunctiva* cgd. Slightly blood-stained yellow fluid in *pericardium*. *Liver* cgd. Cgn. of hilum of *kidneys*. Œdema of *scalp;* hge. in cellular tissue over R. anterior upper part of parietal and still more over upper L. occipital bone. Skull very hard and incompressible. Slight hæmorrhage all over vertex of *brain*, also on *cerebellum*. A little hge. outside theca of *spinal cord* in cervical region. Hydrocele of *tunica vaginalis*. Hge. into *L. testicle*, R. cgd.

Case 94.—M., 5 lbs. 8 oz. (without brain), 21 in.—*Cephalotripsy* (*child previously dead*) *; prolapsed funis.*

A little hge. in arachnoid cavity in cervical region.

Case 95.—M., 1 lb. 8 oz., 15 in.—*Accidental hæmorrhage ; vertex presentation.*

Kidneys cgd. Hge. into *R. sterno-mastoid.*

Case 96.—F., 4 lbs. 9 oz. (without brain), 18 in.—*Kyphotic pelvis ; cephalotripsy.*

No cgn. ; no hge. in any organ.

Case 97.—M., 16½ in.—*Tedious natural* (*vertex*) *delivery ; child weak, died in convulsions a few hours after birth.*

Thrombosis of *longitudinal sinus;* much cgn. and œdema of *meninges* of brain, especially near the longitudinal sinus. There is much serum and clotted blood in the cellular tissue of posterior part of scalp (it seems as if the clotting has spread from this part into the longitudinal sinus).

Case 98.—M., 8 lbs. 2 oz., 21½ in.—*Contracted pelvis ; forceps* (*difficult delivery*).

There is a bruise 1¼ in. above R. eye (forceps), also on

left side of neck over *sterno-mastoid* (forceps) ; under this latter bruise is a black hge. into the lower three-fourths of the sterno-mastoid muscle (the omohyoid is *pale*). The *L. internal jugular vein* is greatly distended (as thick as the little finger), having been clamped by the point of the forceps blade ; on the R. side the vein is normal. The R. frontal bone is fractured (forceps). Much black blood in scalp. Great effusion of black blood over surface and at base of *brain.*

Case 99.—M., 6 lbs. 10 oz., 21 in.—*Primipara ; seven hours in labour ; vertex presentation ; the child had a right diaphragmatic hepatic hernia, and lived for three quarters of an hour.*

The surface of the portion of *liver* within the thorax is covered with petechiæ as big as pins' heads, resembling Tardieu's spots in the lungs.

Case 100.—F.—*Lived three days ; very blue at birth ; vertex presentation.*

Blue-black *nails. Intestines, uterus, Fallopian tubes,* and *ovaries* cgd. *Lungs* enormously cgd. at bases on both sides. Extensive hge. behind *R. supra-renal,* which is much cgd. Thrombosis of longitudinal sinus ; great cgn. of vessels of *brain ; medulla* cgd.

Case 101.—M., 1 lb. 9 oz., 14 in.—*Accidental hæmorrhage ; membranes ruptured ; os size of a crown, moderately rigid ; vertex presentation ; child then delivered by one sudden severe pain.*

Scalp much bruised ; black blood effused into it, and also beneath the pericranium. Skull-bones very moveable and depressible, especially the L. parietal, under which a small amount of blood has collected in the *Sylvian fissure ;* there is a large quantity of blood in the *L. lateral ventricle,* together with a clot measuring 1 in. by ½ in. Hge. of size of a bean on upper surface to R. of suspensory liga-

ment of *liver*. Hge. into hilum of *kidneys*. *Supra-renals* cgd. Œdema of tissues outside theca.

Case 102.—M., 5 lbs., 19½ in.—*Natural vertex; child revived by artificial respiration, then suddenly died fifteen minutes later.*

Œdema and hge. in *scalp*. A few Tardieu's spots on *lungs*. Hge. on upper surface of R. lobe of *liver*. Hge. under capsule of *spleen* and into its substance (Pl. VIII, figs. 2 and 3). Hge. and cgn. of cellular tissue around *kidneys* and in hilum. Hge. into *supra-renals*. Œdema of scrotum. *Testicles* cgd., especially on L. side. Hge. at *base of brain* and into *tentorium cerebelli*, chiefly on L. side.

Case 103.—M., 7½ lbs. (without skull contents).—*Prolonged labour; hydrocephalus; brow presentation; craniotomy* (child being dead).

Hge. on upper surface of R. lobe of *liver* in front. *Testes* slightly cgd.

Case 104.—F., 5 lbs. 10 oz., 18 in.—*Anencephalus; face presentation; child breathed for some minutes after birth.*

Liver much cgd. *Spleen*, larynx cgd. Cgn. between *kidneys* and *supra-renals*. *Thyroid* and *submaxillary glands* much cgd. Hge. into periosteum over base of skull. *Medulla* and *cervical cord* black with effused blood; hge. into upper *spinal arachnoid*; hge. into *column of Goll* in lumbar region. Hge. into back of orbits and under the *conjunctiva*.

Case 105.—M., 3 lbs. 1 oz., 15⅝ in.—*Twin* (*with Case* 106), *the first born; vertex presentation* (*occiput posterior*); *lived forty-four hours.*

Large hge. in *lateral ventricles*, and on sides of and below both *temporo-sphenoidal lobes*. *Testes* cgd. Hge. into bases of *lungs*, where they are black, solid, and sink in water. *Stomach* contains blood (? from lungs). Hge. into cellular tissue outside theca.

Case 106.—F., 3 lbs., 16¼ in.—*Twin (with Case* 105), *the last born ; vertex presentation ; lived twenty-eight hours.*

Blue hands, legs, arms. Bruised sternum (artificial respiration). Slight hge. into cellular tissue of *kidneys* and into pyramids. Much hge. on surface of *brain*. *Lungs* slightly cgd. *Thymus* red.

Case 107.—F., 3 lbs. 5 oz., 18 in.—*Lived four days ; vertex presentation ; forty-eight hours in labour ; membranes ruptured a long time before birth ; no meconium passed ; child vomited meconium ; no obstruction in rectum ; an enema given ; a little meconium passed and a spot of blood.*

Anus bruised (little finger used to explore) ; two drachms of blood in *peritoneum*. Half a drachm in *L. pleura*. *R. pleura* full of black-red blood. *R. lung* solid with effused blood in lower lobe ; L. lung black, solid at base. *Kidneys* cgd. *Spleen* black, solid. Hge. into wall of *cæcum* one-third of an inch thick, solid ; the blood has burst into the lumen of the cæcum, and has passed into ileum and ascending colon ; it is coagulated, firm, and completely obstructs the gut. There are also two small subperitoneal hges. under the peritoneum of the ileum (Pl. VIII, fig. 4).

Case 108.—M., 7 lbs. 12½ oz., 22 in.—*Vertex presentation ; cephalotripsy.*

A thin bleb of blood on lower surface of R. lobe of liver, also a very small hge. on the upper surface. *Stomach* contains blood and mucus (? the blood comes from the base of the skull). Hge. into cellular tissue outside theca of *spinal cord*.

Case 109.—M., 4 lbs. 5 oz., 16 in.—*Child had ascites ; vertex presentation ; probably extracted by nurse.*

Tissues beneath lower jaw bruised. Thin edge of base of *lungs* black (? bruised).

CASE 110.—M., 5 lbs. 10 oz., 18 in.—*Placenta prævia; vertex presentation; forceps employed to hold head in pelvic brim, not to deliver.*

Liver and pyramids and hilum of *kidneys* cgd. Hge. into *testes.* Lower edges of *lungs* black.

CASE 111.—M., 2 lbs. 12 oz., 14 in.—(*Twin with Case* 112.)

Liver much cgd.

CASE 112.—M., 2 lbs. 8 oz., 14 in.—(*Twin with Case* 111.)

Hge. on surface of both hemispheres of *brain.* Hge. on surface of *liver.*

CASE 113.—F., 6 lbs. 4 oz., 20 in.—*First vertex presentation; four and a half hours in labour; icterus; child had unicorn uterus; lived fourteen and a half hours.*

Under surface of *liver* greatly cgd. (? hge.). Yellow œdema and hge. into cellular tissue of legs. Great cgn. of *pectoral muscles.* Several brown-red spots on *lungs. Spleen* much cgd.

CASE 114.—F., 6 lbs. 12 oz., 20 in.—*Left diaphragmatic hernia; vertex presentation.*

Skull compressible; extensive hge., upper half of *cortex cerebri. Liver* very black (? hge.).

CASE 115.—F., 7 lbs. 12 oz., 21 in.—*Labour lasted fifteen hours; third breech presentation; delay in delivery of shoulders* (*extension of R. arm*).

Nails blue. Hge. from *nose.* Hge. all over cortex of *brain* and above *cerebellum.* Veins on surface of *spinal cord* much distended. Great cgn. (? hge.) in body of *uterus,* subperitoneal veins at back of uterus very full. Hge. into hilum of *kidneys,* which are greatly cgd. Cgn. of *supra-renals* and *spleen.*

CASE 116.—M., 3 lbs. 15 oz., 16½ in.—*Autopsy three hours after death. Complete placenta prævia; cervix (rather rigid) dilated by Barnes's bags; difficult bipolar version (membranes previously ruptured); L. leg brought down; slight traction to check hæmorrhage and to deliver head.*

Hge. in R. upper *sterno-mastoid;* much hge. into R. upper *splenius capitis;* hge. into *R. parotid,* and into tissues beneath lower jaw; hge. into periœsophageal cellular tissues. Hge. into scalp (scarcely any œdema). Hge. and œdema fluid all over surface of *brain,* especially at base. *Spinal cord* cgd.; (?) hge. into anterior cornua at various levels. Extensive hge. beneath capsule over nearly whole of upper surface of R. lobe of *liver. Spleen* cgd. Much hge. into hilum of *kidneys. Supra-renals* cgd. Apparently hge. into lumen of *large intestine* in places. *Testes* slightly cgd. Hge. into *glans penis.* Blood-stained fluid in *pleuræ,* especially *R. lungs;* generally cgd. *Thymus* much cgd. (? hge.).

CASE 117.—F., 5 lbs. 8 oz., 19 in.—*Natural first vertex delivery.*

Body pale; slight bruise on R. forehead. Extensive subcapsular hge. on upper surface of both lobes of *liver,* and on lower surface at the quadrate lobe and other places. Hge. into *lungs* (almost black). Hge. beneath visceral *pericardium* in several places. Great cgn. and some hge. in *Schneiderian membrane.* Very little œdema of scalp; hge. under the periosteum of both parietal bones. Hge. on surface of upper posterior *parietal lobes;* fulness of veins on upper surface of *cerebellum.* Mucous membrane of *stomach, œsophagus,* and *jejunum* greatly cgd.; hge. into *duodenum.* Cgn. of vessels on front surface of *uterus. Spleen* greatly cgd. in blackish spots. *Kidneys* (especially L.) dark blue on surface; cortex deeply ecchymosed. *Supra-renals* cgd.; slight hge. into left. *Thymus* (large) much cgd.

CASE 118.—M., 1 lb. 6½ oz. (without head), 14½ in.—*Labour lasted nineteen hours; third brow presentation converted into face; then rapidly born.*

Meningeal hge. on both sides over surface of brain and cerebellum; falx cgd. Small hge. on upper surface of *liver.*

CASE 119.—M., 6 lbs., 19¾ in.—*Natural vertex delivery; child was very blue from birth; lived three days.*

Intense cgn. of small *intestines* and *omentum.* Pyramids of upper half of *R. kidney* cgd. *Thyroid* much cgd. *Lungs* semi-solid, greatly cgd.; excess of fluid in *pleura.* Thrombosis of *longitudinal sinus;* the whole of *brain* greatly cgd.; hge. into *tentorium cerebelli;* hge. around *cerebellum* and *medulla.*

CASE 120.—M., 5 lbs. 15 oz., 19 in.—*Face presentation.*

Bruised forehead, cheeks, and lips; ecchymosed eyelids; a transverse bruise at crease in front of neck; conjunctivæ of a deep black-red. "Caput" on R. side of head, also all over forehead (chiefly R. side) and over occiput. Hge. into connective tissue of scalp at R. upper and posterior part of parietal bone. Hge. between dura mater and bone in various places; hge. into *falx. Meninges* of brain full on L. side, not on R.; copious hge. on under surface of *L. temporo-sphenoidal lobe,* none in R.; hge. around medulla and around and above *cerebellum. Lungs* cgd.; a few subpleural petechiæ. Bases of pyramids of *L. kidney* cgd.

CASE 121.—M., 9 lbs. 4 oz., 21 in.—*Forceps; difficult delivery of shoulders* (6½ *in. across*).

"Caput" on R. side (œdema and disseminated hges.); great cgn. of frontal suture; cgn. of *Schneiderian membrane.* Slight hge. over surface of *brain;* much hge. at base around *medulla* and *cerebellum;* hge. into *tentorium cerebelli.* Œdema outside *theca,* chiefly at lower part;

much hge. inside theca, chiefly at lumbar enlargement. *Œsophagus, duodenum,* and *testes* cgd. Great cgn. of *larynx* and *liver* (9 oz.).

Case 122.—M., 5 lbs. 14½ oz., 19 in.—*Placenta prævia; bipolar podalic version (os nearly fully dilated); easy natural delivery two hours later; autopsy eighteen hours after birth.*

Body pale. *Meninges of brain* very œdematous, bags of œdema-fluid hanging under the temporo-sphenoidal lobes. Vessels around *medulla* and *cerebellum* cgd. A little hge. outside theca. *Thymus* and *supra-renals* cgd.

Case 123.—M., 6 lbs. 9½ oz., 20¼ in.—*Breech presentation, natural except that arms became extended.*

Hge. over R. upper coronal suture. Vessels of *brain* full, especially around medulla and cerebellum. Hge. outside theca. *Liver* cgd. on lower and upper surface in front. Hge. of size of No. 7 shot in the middle of one of the *pulmonary valves*. *Kidneys* much cgd.; hge. into cellular tissue behind R. *Duodenum* cgd. Hge. into *testes; spermatic cords* full, especially R.; (?) hge. into lower spermatic cord; scrotum œdematous and red.

Case 124.—M., 5 lbs. 8 oz., 19½ in.—*Imperforate rectum; lived one day; blue from birth.*

Body dusky; œdema of abdominal walls (? from pressure of distended rectum on pelvic veins). *Kidneys, supra-renals, liver,* and *duodenum* cgd.; great cgn. of upper part of *œsophagus*. The *heart* has only one cavity, the right side being rudimentary. The veins of the body are full, especially those of neck. Brain vessels much cgd., especially of *Sylvian fissure* (? hge.); much œdema of lower surface of *temporo-sphenoidal lobes.*

Case 125.—F., 2 lbs. 6 oz., 14½ in.—*Fourth vertex presentation; labour lasted twelve hours; child lived twenty-six hours; during life it went through curious antics,*

raising its right hand above its head, and its left hand upwards towards its right hand.

There is a considerable hge. over the *R. temporo-sphenoidal lobes* (Pl. III, fig. 1), also a thin layer all over surface of brain (chiefly on R. side) above cerebellum and around medulla. Hge. outside theca. Bases of pyramids of *kidneys* and the *supra-renals* cgd.

Case 126.—M., 5 lbs., 19 in.—*First breech presentation; legs extended; natural delivery; labour lasted thirteen hours; mother thinks the child died six hours before birth.*

Hge. over posterior fontanelle. Nails blue-black. Body very pale; internal organs generally pale. Hge. outside theca in cervical region. Enormous collection of blood under the capsule on the upper surface of right lobe of *liver* (Pl. III, fig. 4); this hge. was probably produced by the pressure of the extended lower limbs, and seems to have been the cause of death. Slight cgn. of bases of pyramids of *kidneys*. Hge. into *jejunum*. *L. testis* (in the scrotum) has hge. into it; *R. testis* (in the abdomen) shows a cgd. mediastinum only.

Case 127.—M., 4 lbs. 9 oz., 19½ in.—(?) *Face presentation.*

Hge. under frontal aponeurosis on both sides; hge. over R. upper coronal suture; œdema of forehead and of eyelids. Small amount of blood under the dura mater of both frontal bones, due to cracking of the internal table of the skull. Cgn. of *œsophagus* behind cricoid. *Larynx* and *trachea* cgd., and contain meconium which has passed into the smaller bronchioles. A few Tardieu's spots on *lungs* (cgd.). *Liver* and *thymus* cgd. *Supra-renals* and *kidneys* greatly cgd.; hge. at bases of pyramids and into some of the pyramids. *Spleen* nearly black; much blood effused beneath the capsule on inner and outer surface and into its substance (Pl. VIII, fig. 1). Great cgn. (? hge.) of

both *testes;* (?) hge. into *spermatic cords.* Great œdema outside theca; vessels on back of *spinal cord* much cgd. *Cerebral meninges* cgd. on L. side. L. parietal bone beneath R.

Case 128.—F., 6 lbs. 8 oz., 19½ in.—*Breech, extended legs; impaction; failed to bring down leg; traction with fillet in groin; arms extended, difficult to bring down; child died during delivery of arms.*

Hæmatoma of L. labium minus; hge. into cellular tissue around orifice of vagina. A little hge. at base of *brain* beneath temporo-sphenoidal lobes, a little also along the course of the vessels of L. Sylvian fissure, which seem to have been pressed upon by the anterior lower corner of parietal bone. Yellowish-brown œdema and a little hge. under spinal laminæ. Meconium in lungs (no petechiæ). Small hge. into anterior edge of lower sternal portion of *L. sterno-mastoid. Thymus* cgd. *Liver* bruised (? by lower limbs). Cgd. bases of pyramids of *kidneys;* hge. into hilum. *Supra-renals* cgd.; (?) hge. into R. *Spleen* much cgd. Bruising of tissues in front of L. hip (where handkerchief pressed); cgn. of margin of acetabulum and of Y-shaped ligament.

Case 129.—M., 5 lbs. 10 oz., 19 in.—*Easy breech delivery; child lived six days.*

Lungs: at their lower edges are a few dark-purplish places, more solid than the rest of the lung; they look as if they had had hge. into them and were recovering from it. *Spleen* cgd. Œdema outside theca.

Case 130.—F., 8 lbs. 12 oz., 21¼ in.—*Shoulder presentation; version.*

Œdema over point of L. shoulder. *Lungs* cgd.; not solid; no petechiæ. *Spleen* and *supra-renals* cgd. *Liver* cgd. at L. lobe and R. lobe where diaphragm is attached. *Kidneys* greatly cgd.; hge. into hilum of L. Hge. all

over *brain,* and at base and above *cerebellum* and around *medulla.* Hge. into *spinal arachnoid.* Hge. over R. upper lambdoid suture. Two little shot-like hges. in the red tuberculated fringed edge of the *mitral and the tricuspid valve* on the auricular aspect.

PART II.

TABLE I.—*Injuries to the Brain.*

No. of case.	Congestion.	Hæmorrhage.	Mode of delivery.
3	. . . . .	At base	Forceps (prolapsed funis).
4	Meninges	. . . . .	. . . . .
5	,,	. . . . .	Version.
6	,,	. . . . .	*Conduplicato corpore.*
7	Pia mater	. . . . .	(?) Breech.
11	Brain	. . . . .	Forceps (accidental hæmorrhage); (?) dead before.
12	Meninges and brain	Over base, pons, cerebellum, medulla; clot in choroid plexus	Forceps.
14	Brain	. . . . .	Forceps (accidental hæmorrhage); (?) dead before.
15	Meninges and choroid plexuses	Slight on surface	Natural breech; head delayed.
17	,,	. . . . .	Natural vertex.
18	Meninges	Beneath occipital dura mater; into both lateral ventricles, chiefly right	Vertex; rapid delivery through rigid os (*vide*).
20	Brain	. . . . .	. . . . .
21	Veins at upper part of fissure of Rolando	. . . . .	(?) Vertex.
23	. . . . .	Into frontal lobe (*vide*)	Forceps; child lived 17 days.
25	Medulla, choroid plexuses	Slight on surface of temporo-sphenoidal lobes, at base, around medulla, pons, and cerebellum; clot in longitudinal and lateral sinuses	4th breech; accidental hæmorrhage; premature rupture of membranes; rapid delivery.
26	. . . . .	Slight at base (skull thin)	. . . . .
28	. . . . .	Slight over hemispheres; 2 drachms over left temporo-sphenoidal lobe, and over pons and medulla	Primipara, æt. 35; contracted pelvis; in labour 24 hours; low forceps; child lived 1 hour; skull very thin (*vide*).

Note.—Simple dots in these tables are intended merely to guide the eye; double commas imply identity with the statement in the same column above.

No. of case.	Congestion.	Hæmorrhage.	Mode of delivery.
29	Meninges	. . . . .	Natural vertex.
32	Yellow œdema	. . . . .	Natural vertex.
34	. . . . .	Much on right side of cerebrum, also at base on both sides	Contracted pelvis (3 in.); induction of labour at 7½ months; forceps; child lived 2 days.
35	Brain	(?) Into substance of medulla	Natural vertex; cord round neck (*vide*).
36	Meninges and brain	At base	Natural vertex.
37	,,	. . . . .	Natural vertex.
38	,,	At base; under dura mater at depressed part; much around pons and medulla; much on surface at indented part, not on other side	Footling; contracted pelvis; depression of right parietal bone.
39	. . . . .	On surface of and at base of temporo-sphenoidal lobes	Natural vertex.
40	Left side of cortex œdomatous; œdema fluid at base	. . . . .	(?) Natural vertex; (?) caul.
41	. . . . .	Into representative of cerebrum	Anencephalus; face presentation.
42	. . . . .	From left middle cerebral vessels (pressed upon by anterior lower corner of parietal bone)	Natural vertex (cord around neck).
43	. . . . .	Considerable on top of both hemispheres (*vide*)	Skull flattened (left parietal bone under occipital)
44	. . . . .	On surface, both sides; at base; around cerebellum, and between this and medulla; (?) hæmorrhage into medulla	Natural breech; head delayed.
45	. . . . .	Right parietal region, especially at base, between cerebellum and medulla; hæmorrhage extends into spinal canal	Footling (both feet); traction; delivery of head difficult.
47	Œdema of brain and meninges	. . . . .	Placenta prævia; version; then natural delivery.
48	. . . . .	Surface of hemispheres; at base; in right lateral ventricle (*vide*)	Natural footling.
51	Especially of meninges, beneath posterior fontanelle	. . . . .	Impacted breech.
54	. . . . .	Over whole surface; around base; two minute hæmorrhages into floor of fourth ventricle	Prolapsed funis; version; traction and supra-pubic pressure.
56	. . . . .	Both parietal regions and at base; a patch in left temporo-sphenoidal region	Breech (extended legs); extraction.

60	Cerebellum and medulla	Right Sylvian fissure; over both temporo-sphenoidal lobes; into tentoria and falx; 2 ounces of blood-stained fluid in ventricles	Contracted pelvis; forceps (twice); version; slight hydrocephalus (*vide*).
63	. . . . .	Both Sylvian fissures	(?) Breech with traction.
66	Great, throughout brain and cerebellum	Clot in choroid plexuses	. . . . .
67	Brain and meninges	. . . . .	Natural vertex.
68	,,	. . . . .	. . . . .
69	. . . . .	On surface, at base; into lobes of cerebellum and medulla	Anencephalus; footling; traction.
70	Much œdema fluid	Large clot at base, over temporo-sphenoidal lobes of right side, and over fissure of Sylvius	Icterus; child lived 4 days.
71	Of right hemisphere	Surface of left hemisphere (several drachms), at base; over left side of cerebellum	Version (epilepsy in mother); natural delivery 14 hours later.
72	Œdema of meninges	Surface of left hemisphere	Placenta prævia; version; extraction.
76	. . . . .	Over hemispheres	. . . . .
78	. . . . .	Blood-like fluid in arachnoid	Vertex; lived 18 hours (*vide*).
79	. . . . .	Slight at base of cerebellum and around medulla	Contracted pelvis ($3\frac{3}{16}$ in.); forceps.
80	. . . . .	Surface of right hemisphere	. . . . .
81	. . . . .	All over surface of right hemisphere . . .	Hydrocephalus, spina bifida; skull incompletely ossified.
82	. . . . .	Both parietal regions and at base	Second vertex, natural.
83	. . . . .	Left side and at base	Second breech; forceps; traction on groin.
84	. . . . .	Much over left hemisphere and at base; some hæmorrhage right side (forceps marks over left parietal); hæmorrhage above cerebellum	Forceps (prolapsed funis); skull very thin in lower parietal regions.
85	. . . . .	Much on surface of left hemisphere and at base on both sides	Accidental hæmorrhage; footling; great traction; rigid cervix.
87	Meninges (opaque); œdema fluid at base	. . . . .	. . . . .
88	Œdema; excess of fluid in lateral ventricles	. . . . .	Natural vertex.
89	. . . . .	Beneath upper right parietal bones . . .	Breech; 8 hours labour; natural till shoulders born; child gasped, and was delivered by nurse, dead.
90	. . . . .	Much over right hemisphere ("caput" over right posterior parietal)	Forceps; first vertex.
91	. . . . .	On upper surface, at junction of middle and posterior thirds; but especially under the thin posterior parts of parietal bones	Breech; extended arms; difficult extraction (child's heart beating at birth).

No. of case.	Congestion.	Hæmorrhage.	Mode of delivery.
92	Much, and œdema	. . . . .	Natural breech; head delayed.
93	Meninges and brain	All over cortex and cerebellum	Fourth vertex; difficult forceps.
97	Much, and œdema	Thrombosis of longitudinal sinus	Tedious natural vertex; child died convulsed a few hours later.
98	. . . . .	Much over surface and at base (*vide*) . . .	Difficult forceps (fracture of right frontal bone; hæmorrhage into left sterno-mastoid from pressure of point of blade; internal jugular distended from same cause).
100	Intense (meningeal), especially at top, near middle line; also of medulla and choroid plexuses	Thrombosis of longitudinal sinus	Child lived 3 days; vertex.
101	. . . . .	Under left parietal; in Sylvian fissure; large clot in left lateral ventricle	Sudden vertex delivery (skull bones moveable, especially left parietal).
102	. . . . .	At base; into tentorium cerebelli, chiefly on left side	Natural vertex; lived 15 minutes.
104	. . . . .	Into medulla (black)	Anencephalus; face presentation.
105	. . . . .	In both lateral ventricles; much on sides of and below temporo-sphenoidal lobes	Natural vertex, 1st twin; lived 44 hours.
106	. . . . .	Much on surface	Natural vertex, 2nd twin; lived 28 hours.
112	. . . . .	On surface of hemispheres	. . . . .
114	. . . . .	Extensive on upper half of cortex	(Skull compressible); vertex.
115	Meninges and brain	Considerable over vertex and above cerebellum .	Third breech; delayed shoulders.
116	Œdema, especially at base	Considerable all over surface, especially at base .	Placenta prævia; version; slight traction.
117	Of vessels of upper surface of cerebellum	On surface of upper posterior parts of parietal lobes	Natural first vertex.
118	Of falx	All over brain and cerebellum	Third face (6½ months child).
119	Great (of meninges)	Into tentorium cerebelli, around cerebellum and medulla; thrombosis of longitudinal sinus	Natural vertex; lived 3 days.
120	Of meninges of left side of upper cortex	Much on under surface of left temporo-sphenoidal lobe; some around medulla and around and above cerebellum	Face.
121	. . . . .	Slight on surface; much at base around medulla and cerebellum; hæmorrhage into tentorium cerebelli	Vertex; forceps.

	especially under the temporo-sphenoidal lobes		livery 2 hours later.
123	Meninges; especially around medulla and cerebellum	. . . . .	Natural breech.
124	Meninges; especially in Sylvian fissure; much œdema of surface of temporo-sphenoidal lobes	. . . . .	(?) Vertex.
125	. . . . .	Much over right temporo-sphenoidal and occipital lobes; some all over surface and around cerebellum and medulla	Fourth vertex; lived 26 hours.
127	Meninges, left side (left parietal bone under right)	. . . . .	(?) Face.
128	. . . . .	Some beneath temporo-sphenoidal lobes; a little along left Sylvian fissure (*vide*)	Breech (extended legs).
130	. . . . .	All over and at base; above cerebellum and around medulla	Shoulder presentation; version.

Table II.—*Injuries to the Liver.*

No. of case.	Congestion.	Hæmorrhage.	Rupture.	Mode of delivery.
1	General	. . . . .	. .	Breech; traction.
3	. . . . .	Upper surface of left lobe	. .	Forceps; prolapsed funis.
4	General	. . . . .	. .	. . . . .
5	„	. . . . .	. .	Accidental hæmorrhage; version.
6	„	On upper surface of each lobe near front edge	. .	*Conduplicato corpore.*
7	Almost black in places	. . . . .	. .	(?) Breech.
10	. . . . .	From extensive rupture	Of posterior part of right lobe	Hydrocephalus; breech; traction.
11	General	. . . . .	. .	Accidental hæmorrhage; forceps.
12	„	. . . . .	. .	Forceps.

No. of case.	Congestion.	Hæmorrhage.	Rupture.	Mode of delivery.
13	General	. . . . .	. .	Natural vertex.
14	. . . .	. . . . .	. .	Natural vertex.
15	At upper surface	. . . . .	. .	Accidental hæmorrhage; forceps.
16	Slight, general	. . . . .	. .	Breech.
17	General	Small subcapsular at under surface of right lobe	. .	Neglected shoulder; decapitation.
18	At under surface	Covering quadrate lobe	. .	Natural vertex.
19	Surface bruised in various places	Of size of a shilling under capsule over lower surface	. .	Rapid natural vertex; rigid os.
21	General	. . . . .	. .	. . . . .
26	,,	. . . . .	. .	(?) Vertex.
27	. . . .	Of size of a halfpenny on upper surface . .	Of capsule	
28	Bruised upper surface	Subcapsular (produced by crotchet) upper surface	. .	Vertex; cephalotripsy.
29	General	Small subcapsular on upper surface, half way from before back to right of coronary ligament	. .	Low forceps.
31	. . . .	On upper surface of left lobe, also in canal for umbilical vein	. .	Natural vertex.
32	. . . .	On upper surface of right lobe; upper and lower surface of left lobe	. .	Natural breech; lived 4 days.
33	General	. . . . .	. .	Natural vertex.
34	,,	. . . . .	. .	Natural vertex.
36	,,	Small, on upper surface of left lobe . . .	. .	Forceps; contracted pelvis; induced labour. Child lived 3 days.
37	. . . .	Large, on upper surface of left lobe . .	. .	Natural vertex.
40	General	. . . . .	. .	Natural vertex; lived 8 days.
42	,,	. . . . .	. .	(?) Vertex; rapid delivery.
44	,,	. . . . .	. .	Natural vertex.
46	,,	. . . . .	. .	Breech.
47	Slight of upper surface of right lobe	Of size of bean beneath capsule of lower surface of right lobe	. .	Version; extraction; craniotomy; rigid cervix.
48	. . . .	Extensive on upper surface of right lobe . .	. .	Version; slight traction.
49	. . . .	Extensive on upper surface of right lobe . .	. .	Natural footling.
51	. . . .	Large on upper surface	. .	Version; embryotomy.
52	General	. . . . .	. .	Impacted breech.
54	,,	(?) Upper surface bruised	. .	Vertex; cephalotripsy.
	Of upper posterior part of right lobe	. . . . .	. .	Version; traction.

	hernial portion)			
56	General	. . . . .	. .	Breech; extended legs.
58	,,	. . . . .	. .	Breech; traction.
61	,,	Three hæmorrhages on upper surface . .	. .	Natural vertex; lived 3 hours.
63	,,	Slight on upper surface	. .	(?) Breech; traction.
64	,,	. . . . .	. .	Vertex; accidental hæmorrhage.
67	,,	On surface of quadrate lobe	. .	Natural vertex.
68	,,	. . . . .	. .	(Prolapse of funis.)
69	,,	. . . . .	. .	Footling; traction.
74	,,	. . . . .	. .	(?) Breech.
82	. . . .	Small on upper surface of right lobe . .	. .	Second vertex; primipara.
83	. . . .	Several hæmorrhages on lower surface; small hæmorrhage on anterior edge of right lobe	. .	Second breech; forceps; traction on groin.
84	General	. . . . .	. .	Forceps.
85	. . . .	Large on upper surface of right lobe . .	Of capsule	Footling; much traction; cervix rigid.
86	General	. . . . .	. .	Natural vertex.
87	,,	. . . . .	. .	. . . . .
88	,,	. . . . .	. .	Natural vertex.
91	. . . .	Small beneath capsule of quadrate lobe . .	. .	Breech; extended arms.
93	General	. . . . .	. .	Vertex (occiput posterior); forceps.
99	. . . .	Petechial, subcapsular	. .	Vertex (right diaphragmatic hepatic hernia).
101	. . . .	Of size of bean on upper surface of right lobe .	. .	Vertex; sudden delivery.
102	. . . .	On upper surface of right lobe . . .	. .	Natural vertex.
103	. . . .	On upper surface of right lobe . . .	. .	Brow; craniotomy.
104	General	. . . . .	. .	(Anencephalus) face.
108	. . . .	On both surfaces of right lobe	. .	Vertex; cephalotripsy.
110	General	. . . . .	. .	Vertex; placenta prævia.
111	,,	. . . . .	. .	. . . . .
112	. . . .	On surface	. .	. . . . .
113	Of lower surface	(?) On lower surface	. .	Natural vertex.
114	General	(?)	. .	Natural vertex.
116	. . . .	Large on upper surface of right lobe . .	. .	Version; slight traction; placenta prævia.
117	. . . .	Large on both surfaces	. .	Natural vertex.
118	. . . .	Small on upper surface	. .	Face.

No. of case.	Congestion.	Hæmorrhage.	Rupture.	Mode of delivery.
121	General	. . . . .	. .	Forceps.
123	Of fore part of upper and lower surfaces	. . . . .	. .	Natural breech.
124	General	. . . . .	. .	. . . . .
126	. . . .	Enormous over upper surface of right lobe .	. .	Breech; extended legs.
127	General	. . . . .	. .	(?) Face.
128	(?) Bruised	. . . . .	. .	Breech; extended legs.
130	General, left lobe more than right	Marked bruising of posterior edge of right lobe	. .	Shoulder; version.

TABLE III.—*Injuries to the Kidneys.*

No of case.	Congestion.	Hæmorrhage.					Mode of delivery.
		Around.	Into cortex.	Into hilum.	Into pyramids.	At bases of pyramids.	
1	General, especially at bases of pyramids	. . .	. .	. .	. .	(?) On right side	Breech.
4	Great of both	Beneath capsule of left	Of both	. .	. .	(?) On both sides	. . . . .
6	Of both	. . .	. .	. .	. .	. .	*Conduplicato corpore.*
7	Of both, especially of pyramids and at their bases	. . .	. .	. .	. .	. .	(?) Breech.
10	Great of both	Subcapsular in right	. .	. .	. .	. .	Breech, traction.
11	Great of pyramids, both	. . .	. .	. .	. .	. .	Forceps (? child dead before applied).
12	Of both, especially at lower end of left	. . .	. .	. .	. .	. .	Forceps.
13	Slight, at bases of pyramids	. . .	. .	. .	. .	. .	Second vertex.
14	Of both		Of l[illegible]				

	part of left		outer anterior part of left				
16	Of both (at bases of pyramids)	. . .	. .	. .	. .	. .	Neglected shoulder (decapitation).
17	. . . . .	Between right and supra-renal; also at hilum, appearing externally	. .	Of right	. .	. .	Natural vertex.
18	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	Natural vertex (rapid).
19	Of both (lower ends)	. . .	. .	. .	. .	. .	. . . . .
20	Of both (bases of pyramids)	. . .	. .	. .	. .	Of both (small punctate hæmorrhages)	. . . . .
21	Of left (especially bases of pyramids)	Into cellular tissue behind right	. .	Of right	. .	. .	(?) Vertex.
23	. . . . .	. . .	. .	. .	Much of both	. .	Vertex, forceps; lived 17 days.
25	Great of both	. . .	. .	Of both	. .	. .	Fourth breech; premature rupture of membranes; rapid delivery.
28	Of right; of bases of pyramids of left	. . .	. .	Much of left	. .	. .	Contracted pelvis; forceps.
29	Of both	. . .	. .	. .	. .	. .	Natural vertex.
31	Of right	Behind both	. .	. .	. .	. .	Natural breech; lived 4 days.
32	Of both (bases of pyramids)	. . .	. .	Of both	. .	. .	Natural vertex.
33	Of both (bases of pyramids)	Into pelvis	. .	. .	. .	. .	Natural vertex.
35	Of both (bases of pyramids)	. . .	. .	Of both	. .	. .	Natural vertex; cord around neck; imperforate anus.
38	Of both (especially left)	. . .	. .	,,	. .	. .	Footling; contracted pelvis.
39	Of both (cortex)	Behind both; between them and supra-renals	. .	Much of both	. .	. .	Natural vertex.
41	Of both (cortex)	. . .	. .	. .	. .	. .	Face (anencephalus).
42	Of both	. . .	. .	. .	. .	. .	Natural vertex.
43	Of both	. . .	. .	. .	. .	. .	. . . . .
44	Of both (hilum)	. . .	. .	. .	. .	. .	Natural breech (cord pressed upon).

No. of case.	Congestion.	Hæmorrhage.					Mode of delivery.
		Around.	Into cortex.	Into hilum.	Into pyramids.	At bases of pyramids.	
45	Of both	. . .	. .	. .	. .	. .	Breech; traction.
46	Much of both (apices of pyramids and around bases)	. . .	. .	. .	Of both (apices)	. .	Version; traction.
47	Of both	. . .	. .	Slight of both	. .	. .	Version; slight traction.
48	. . . . .	All around	. .	Much of both	. .	. .	Natural footling.
49	Of both	. . .	. .	. .	. .	. .	Version; embryotomy.
51	Of both (bases of pyramids and hilum)	. . .	. .	. .	. .	. .	Impacted breech.
52	Of both (pyramids)	. . .	. .	. .	. .	. .	Vertex; cephalotripsy.
56	. . . . .	. . .	. .	Of both	. .	Of both	Breech; extended legs; extraction.
57	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	. . . . .
58	Of both (bases of pyramids)	Left; (?) from ruptured vein	. .	. .	. .	. .	Breech; traction; premature rupture of membranes.
61	Of both	. . .	. .	. .	. .	. .	Natural vertex; lived 3 hours.
63	. . . . .	Upper part of left (subcapsular)	. .	. .	. .	. .	(?) Breech; traction.
65	Great of lower part of left (subcapsular and cortical)	. . .	. .	. .	. .	. .	(?) Vertex.
66	. . . . .	Beneath peritoneum over right	. .	. .	. .	. .	(Dilated ureters and kidneys).
67	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	Vertex.
68	Of both	. . .	. .	. .	. .	. .	. . . . .
70	Of both	. . .	. .	. .	. .	. .	. . . . .
74	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	(?) Breech (asphyxia).
77	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	Vertex.
78	. . . . .	. . .	. .	Of both	. .	. .	Vertex.
79	Of both (cortex)	. . .	. .	. .	. .	. .	Forceps; contracted pelvis.
80	. . . . .	. . .	. .	Of both	. .	Of both	. . . . .

							traction on groin.
84	Of pyramids of left	. . .	. .	. .	Of right (apices of upper part)	. .	Forceps; prolapsed funis.
85	. . . . .	. . .	. .	Of both	. .	. .	Footling; much traction; rigid cervix.
87	Of both	. . .	. .	. .	. .	. .	. . . . .
88	. . . . .	. . .	. .	Of both	. .	. .	Natural vertex.
89	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	Breech; some traction.
90	Of both	. . .	. .	. .	. .	. .	Forceps.
91	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	Breech; difficult extraction.
93	Of both (hilum)	. . .	. .	. .	. .	. .	Forceps.
95	Of both	. . .	. .	. .	. .	. .	Vertex.
101	. . . . .	. . .	. .	Of both	. .	. .	Rapid vertex; rigid cervix.
102	Of cellular tissue around both	Into cellular tissue around both	. .	,,	. .	. .	Natural vertex.
106	. . . . .	. . .	. .	,,	Much of both	. .	Vertex; lived 28 hours.
107	Slight of both	. . .	. .	. .	. .	. .	Vertex; lived 4 days.
110	Of both (pyramids and hilum)	. . .	. .	. .	. .	. .	Forceps (placenta prævia).
115	Of both	. . .	. .	Of both	. .	. .	Third breech; delayed shoulders.
116	. . . . .	. . .	. .	Much of both	. .	. .	Version; traction; rigid cervix.
117	Of both (surface)	. . .	Ecchymoses	. .	. .	. .	Natural vertex.
119	Of right (pyramids of upper half)	. . .	. .	. .	. .	. .	Natural vertex; lived 3 days.
120	Of left (bases of pyramids)	. . .	. .	. .	. .	. .	Face.
123	Of both	Into cellular tissue behind right	. .	. .	. .	. .	Natural breech.
124	Of both	. . .	. .	. .	. .	. .	(?) Vertex.
125	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	Fourth vertex.
126	Of both (bases of pyramids)	. . .	. .	. .	. .	. .	First breech; extended legs.
127	Of both	. . .	. .	. .	Of both	Of both	(?) Face.
128	Of both (bases of pyramids)	. . .	. .	Of both	. .	. .	Breech; extended legs.
130	Of both	. . .	. .	Of left	. .	. .	Shoulder; version.

TABLE IV.—*Injuries to the Supra-renal Capsules.*

No. of case.	Congestion.	Hæmorrhage around.	Hæmorrhage into the medulla.	Rupture.	Mode of delivery.
3	Of right	. . . .	. . . .	. .	Forceps (prolapsed funis).
4	. . . .	Behind left (from rupture)	Of both	Of left	. . . . .
5	. . . .	. . . .	Of both	. .	Version.
6	Great	. . . .	. . . .	. .	*Conduplicato corpore.*
7	Slight	. . . .	. . . .	. .	(?) Breech.
10	Of left	Into peritoneum	Of right	Of right	Breech; traction (hydrocephalus).
11	Slight	. . . .	. . . .	. .	Forceps (? dead before).
12	Of both	. . . .	. . . .	. .	Forceps.
15	Of left	. . . .	Of left	. .	Natural breech.
17	. . . .	Between right and kidney	. . . .	. .	Natural vertex (caul).
26	Of both	. . . .	Of both	. .	. . . . .
29	,,	. . . .	. . . .	. .	Natural vertex; delay with body.
32	,,	. . . .	. . . .	. .	Natural vertex.
34	,,	. . . .	Of left	. .	Forceps; contracted pelvis; induced labour.
35	Of right	. . . .	Of left	. .	Natural vertex (large body).
37	Of both	. . . .	. . . .	. .	Natural vertex.
38	. . . .	. . . .	Of both; of left in patches	. .	Footling; contracted pelvis.
39	. . . .	. . . .	Of both	. .	Natural vertex.
47	Of both	. . . .	. . . .	. .	Version; slight traction.
48	,,	. . . .	. . . .	. .	Natural footling.
49	. . . .	. . . .	Of both	. .	Version; traction; embryotomy.
51	Of both (large organs)	. . . .	. . . .	. .	Impacted breech.
52	. . . .	. . . .	Of lower half of left	. .	Vertex; cephalotripsy.
60	. . . .	All round right	Of right	Of right	Contracted pelvis; large child; forceps; version.
61	. . . .	. . . .	Of both	. .	Natural vertex; lived 3 hours.
63	Of left	. . . .	. . . .	. .	(?) Breech; traction.
68	Of both	. . . .	. . . .	. .	(Prolapse of funis.)

	(small organs)				
70	Of both	. . . . .	. . . . .	. .	(Lived 4 days).
71	,,	. . . . .	Of both	. .	Version; natural delivery.
74	,,	. . . . .	. . . . .	. .	(?) Breech.
77	Of left (much)	. . . . .	Of left (slight)	. .	Natural vertex.
78	. . . . .	. . . . .	Of both	. .	Natural vertex.
79	. . . . .	Between supra-renals and kidneys on both sides	Of both	. .	Forceps; contracted pelvis ($3\frac{3}{16}$ in.).
82	Of left	. . . . .	. . . . .	. .	Second vertex.
83	Of right (slight)	. . . . .	Of left	. .	Second breech; forceps; traction.
84	Of left	. . . . .	. . . . .	. .	Forceps (prolapsed funis).
85	. . . . .	. . . . .	Of right	. .	Footling; traction; rigid cervix.
89	. . . . .	. . . . .	Slight at upper part of both	. .	Breech; natural till body born, then traction.
91	Of both	. . . . .	Of left (slight)	. .	Difficult breech; extraction.
100	Of right	Much behind right	. . . . .	. .	Vertex (lived 3 days).
101	Of both	. . . . .	. . . . .	. .	Vertex; sudden delivery; rigid os.
102	. . . . .	. . . . .	Of both	. .	Natural vertex.
104	Between kidneys and supra-renals	. . . . .	. . . . .	. .	Face; anencephalus.
115	Of both	. . . . .	. . . . .	. .	Third breech.
116	,, (much)	. . . . .	. . . . .	. .	Placenta prævia; version; slight traction.
117	Of both	. . . . .	Of left (slight)	. .	Natural vertex.
122	,,	. . . . .	. . . . .	. .	Placenta prævia; version, then natural delivery.
124	,,	. . . . .	. . . . .	. .	Lived 1 day.
125	,,	. . . . .	. . . . .	. .	Natural 4th vertex; lived 26 hours.
127	,,	. . . . .	. . . . .	. .	(?) Face.
128	,,	. . . . .	(?) Of right	. .	Breech; extended legs.
130	,,	. . . . .	. . . . .	. .	Shoulder; version.

TABLE V.—*Injuries to the Lungs, &c.*

No. of case.	Contents of pleura.	Pulmonary congestion.	Pulmonary hæmorrhage.	Mode of delivery.
2	A little excess of fluid (pleura opaque in patches)	. . . . .	Chiefly at bases, causing pneumonia	Transverse; version, much traction; lived 4 days.
3	. . . . .	. . . . .	On both sides (subpleural)	Forceps; prolapse of funis.
4	. . . . .	. . . . .	Subpleural petechiæ . .	. . . . .
5	. . . . .	General	Subpleural petechiæ . .	Version.
6	. . . . .	. . . . .	Subpleural petechiæ . .	*Conduplicato corpore.*
9	. . . . .	Of thin edge of bases .	. . . . .	Version; placenta prævia.
10	A little blood-stained fluid	. . . . .	Ecchymoses on surface, especially at bases	Breech, traction; hydrocephalus.
11	. . . . .	Of lungs, larynx, and trachea	Subpleural, at bases and edges	Forceps.
13	. . . . .	Great, of lower lobes, which exude a bloody fluid	. . . . .	Second vertex; labour lasted 2 hours.
15	. . . . .	. . . . .	Subpleural over lungs; into thin edge of lower lobe on left side	Natural breech; delay with head.
16	. . . . .	Very great, of right lung	Into right lung, solid (*vide*)	Neglected shoulder, decapitation.
17	. . . . .	. . . . .	Subpleural, at base of right middle lobe and at thin edge of left lower lobe	Natural vertex (caul over head).
18	. . . . .	Of larynx and trachea .	. . . . .	Sudden, natural.
19	. . . . .	General	Petechiæ on surface and between lobes	. . . . .
20	A few drops of red fluid in right	Of lower edges . .	. . . . .	. . . . .
25	. . . . .	Great, general . . .	. . . . .	Breech; rapid delivery; membranes ruptured.
27	. . . . .	. . . . .	Bruised left upper lobe (crotchet); subpleural hæmorrhage at lower edge of right	. . . . . Cephalotripsy.
28	. . . . .	Of larynx . . .	. . . . .	Forceps.
29	. . . . .	. . . . .	Into thin edges of both lower lobes	Natural vertex; large abdomen (*vide*).

34	. . . . .	. . . . .	Bases solid . . .	Induced labour; contracted pelvis; forceps; lived 2 days.
37	. . . . .	General	Subpleural . . .	Vertex; lived 8 days.
38	. . . . .	. . . . .	Small into substance of left	Contracted pelvis; footling.
39	A drachm of fluid in each	Great, especially of lower lobes	Petechiæ	Natural vertex.
41	. . . . .	Great, especially at bases	(?) Into lower lobes . .	Face (anencephalus).
47	A little reddish fluid in left	Of bases, especially left .	Petechiæ; hæmorrhage into thin edge of left	Version; placenta prævia.
48	. . . . .	Of thin edges of lower lobes	Into left	Natural footling.
49	. . . . .	Of thin edges . . .	. . . . .	Version; embryotomy.
51	. . . . .	. . . . .	Into apex of right . .	Impacted breech.
57	. . . . .	General	. . . . .	. . . . .
58	. . . . .	. . . . .	Into both apices; into left base and edge	Breech; traction; rigid cervix.
60	. . . . .	General	Into both apices; subpleural hæmorrhage at posterior edge and lower surface of right	Contracted pelvis; forceps; version; traction.
63	One drachm of bloody serum in left; a few drops in right	Both lower lobes, especially left	(?) Into left base (almost black)	(?) Breech; traction.
64	. . . . .	General	Petechiæ	Vertex.
65	One drachm of serum in left; less in right	. . . . .	. . . . .	. . . . .
69	One drachm of blood .	. . . . .	Much into left lung and into lower lobe of right	Footling; traction.
74	. . . . .	Of larynx and trachea .	. . . . .	(?) Breech (caul).
78	Bloody fluid . . .	Of lower left lobe . .	. . . . .	Vertex.
79	. . . . .	. . . . .	Petechiæ	Forceps; contracted pelvis.
80	. . . . .	General	Petechiæ	. . . . .
82	Excess of fluid . .	. . . . .	Petechiæ	Second vertex.
83	. . . . .	Of thin edges . . .	Petechiæ	Second breech; forceps; traction.
85	One drachm of bloody fluid in each	. . . . .	Subpleural and intra-pulmonary of posterior border of right and thin edge of both bases	Footling; much traction; rigid cervix.
88	. . . . .	. . . . .	Petechiæ	Natural vertex.
92	. . . . .	General	. . . . .	Breech.
100	. . . . .	Of bases	. . . . .	Vertex.
102	. . . . .	. . . . .	Petechiæ	Natural vertex.

No. of case.	Contents of pleura.	Pulmonary congestion.	Pulmonary hæmorrhage.	Mode of delivery.
104	. . . . .	Of larynx . . .	. . . . .	Face (anencephalus).
105	. . . . .	. . . . .	Into bases	Vertex; first twin; lived 44 hours.
106	. . . . .	Slight	. . . . .	Vertex; second twin; lived 28 hours.
107	Half a drachm of serous fluid in left; four drachms of bloody fluid in right	General	Into both bases, especially right	Vertex; membranes a long time ruptured; labour lasted 48 hours.
109	. . . . .	. . . . .	Into thin edges of bases .	(Ascites); vertex; (?) traction.
110	. . . . .	. . . . .	Into thin edges of bases .	Forceps; placenta prævia.
113	. . . . .	. . . . .	Petechiæ	Vertex; labour lasted 4½ hours.
116	A little blood-stained fluid	Of both	. . . . .	Placenta prævia; version.
117	. . . . .	. . . . .	Into both (almost black) .	Natural first vertex.
119	Excess of fluid in both .	Great	. . . . .	Natural vertex; lived 3 days.
120	. . . . .	General	Petechiæ	Face.
121	. . . . .	Of larynx . . .	. . . . .	Forceps.
127	. . . . .	Of larynx and trachea (contain meconium)	Petechiæ	(?) Face.
129	. . . . .	. . . . .	(?) Into thin lower edges	Breech; extended legs; traction; lived 6 days.
130	. . . . .	General	. . . . .	Shoulder; version.

TABLE VI.—*Injuries to the Testis, &c.*

No. of case.	Congestion.	Hæmorrhage.	Hydrocele.	Hæmatocele.	Mode of delivery.
3	Of testis	. . . .	. .	. . .	Forceps (prolapsed funis).
6	Of spermatic cords . .	Into testes and epididymis	Right side	Of right cord	*Conduplicato corpore.*
12	Scrotum; left spermatic cord	. . . .	. .	. . .	Forceps.
18	. . . . .	. . . .	. .	Of both processus vaginales and cords	Accidental hæmorrhage; sudden delivery; rigid os; vertex presentation.
21	Œdema of dartoid . .	. . . .	. .	. . .	(?) Vertex.
25	Œdema of dartoid . .	Into both testes (black)	On both sides	Of both cords	4th breech; membranes ruptured; rapid birth.
26	Of testes and cords . .	. . . .	. .	Of both processus vaginales	. . . . .
28	Of spermatic cords; œdema of scrotum	. . . .	. .	. . .	Forceps; contracted pelvis.
34	Of mediastinum testis .	. . . .	. .	. . .	Forceps; contracted pelvis; induction of labour; lived 2 days.
35	Of surface of testes, and of mediastinum, and of cord	. . . .	. .	. . .	Natural vertex; cord around neck; imperforate anus.
36	Slight, of testes . .	. . . .	. .	. . .	Natural vertex; cord around neck.
37	Of mediastinum; (?) hæmorrhage	. . . .	. .	. . .	Natural vertex; lived 8 days.
39	Of mediastinum, both; of right cord	. . . .	. .	. . .	Natural vertex.
45	Of spermatic cords (? hæmorrhage); of testes	Into right testis .	. .	. . .	Footling; traction.
48	Of cords and testes . .	Into testes . .	. .	. . .	Natural footling.
49	Of testes	. . . .	. .	. . .	Version; embryotomy.
51	Œdema of right cord; red œdema of scrotum	Into both testes, especially right	. .	. . .	Impacted breech.
58	. . . . .	. . . .	. .	Of processus vaginalis and cord, right side	Breech; premature rupture of membranes; traction.

No. of case.	Congestion.	Hæmorrhage.	Hydrocele.	Hæmatocele.	Mode of delivery.
59	Of testes		On both sides		
60	Of testes		Of both		Contracted pelvis; forceps; version.
66	Of right cord				(Dilated ureters.)
69	Of mediastinum				Hemicephalus; footling; traction.
74	Of cord				(?) Breech; caul.
75	Of cord, especially left; of left testis				
81		Into both testes, especially left			(Spina bifida; hydrocephalus.)
83	Œdema of dartoid	Into mediastinum and dartoid	On both sides	On both sides	2nd breech; forceps; traction on groin.
84	Red œdema of scrotum	Into mediastinum			Forceps; prolapsed cord.
87	Of testes				
88	Of both testes	Into right testis (black spots)			Natural vertex.
90	Of mediastinum				Forceps.
91		Into testes and dartoid			Breech; extended arms.
92	Slight, of testes				Natural breech.
93	Of right testis	Into left testis	On both sides		Forceps.
102	Of testes, especially left				Natural vertex.
103	Of testes				Hydrocephalus; brow presentation; craniotomy.
105	Of testes				Natural vertex.
110		Into both testes			Placenta prævia; forceps.
116	Slight, of testes				Placenta prævia; version; slight traction.
121	Slight, of testes				Forceps (large child).
123	Of scrotum and spermatic cords	Into both testes			Natural breech.
126	Of right mediastinum testis (which was in the abdomen)	Into left testis (which was in the scrotum)			Breech; extended legs.
127	Of spermatic cords and testes	(?) Into both testes		(?) Of cords	(?) Face.

TABLE VII.—*Injuries to the Uterus.*

No. of case.	Congestion.	Hæmorrhage.	Mode of delivery.
11	Of Fallopian tubes and subperitoneal uterine tissue	. . . . .	Forceps; (?) dead before applied.
15	Of ovaries, body of uterus, and cervical cavity for $\frac{1}{6}$ in. from external os	. . . . .	Natural breech.
32	Of subperitoneal uterine tissue, behind and in front	Into subperitoneal uterine tissue at posterior surface	Natural vertex.
33	Of superficial veins	. . . . .	Natural vertex.
38	Of uterine mucous membrane, and subperitoneal tissues	Into mucous membrane of body to a depth of about $\frac{1}{32}$ in.	Contracted pelvis; footling.
40	Of subperitoneal vessels	. . . . .	Very rapid delivery.
56	Of mucous membrane of cervix and body	Into subperitoneal tissues at back of uterus	Breech; extended legs; extraction.
65	Of body of uterus	. . . . .	. . . . .
78	. . . . .	Into cellular tissue around uterus and ovaries	Vertex; (?) septicæmia in utero.
86	Of Fallopian tubes	. . . . .	Natural vertex.
89	Of uterus and Fallopian tubes	. . . . .	Breech; premature rupture of membranes.
100	Of uterus, ovaries, and Fallopian tubes	. . . . .	Vertex; lived 3 days.
115	Of body of uterus and Fallopian tubes	(?) Into mucous membrane of body of uterus	Third breech; delayed shoulders.
117	Of subperitoneal vessels in front . .	. . . . .	Natural vertex.

TABLE VIII.—*Injuries to the Spleen.*

No. of case.	Congestion.	Hæmorrhage.	Mode of delivery.
7	Slight, general		(?) Breech.
12	Great (almost black)		Forceps.
13	General		Vertex.
14	Great, general		Forceps.
24	Slight, general		(Icterus; lived 4 days).
25	General		Fourth breech; accidental hæmorrhage.
60	General		Forceps (two applications).
61	General	To naked eye the hæmorrhage appears disseminated; under microscope diffuse	Natural vertex; died in convulsions 3 hours later.
63	General		(?) Breech; traction.
64	General		Natural vertex; membranes prematurely ruptured.
69	Great, general		Footling; traction.
102	General	Under capsule and into substance	Natural vertex; artificial respiration; died suddenly 15 minutes after birth.
104	Great, general		Face (anencephalus).
107	Great (black)		Vertex; lived 4 days.
113	Great, general		Vertex (4½ hours in labour); lived 14½ hours.
115	General		Third breech.
116	General		Version; slight traction; placenta prævia.
117	Great (as black spots)		Natural vertex.
127		Much, into substance and beneath capsule	(?) Face.
128	Great, general		Breech; extended legs; traction.
129	General		Natural breech; lived 6 days.
130	General		Shoulder; version.

PART III.

Injuries to the Brain (see Table I).

A. *Congestion and Œdema of the Membranes of the Brain.*

Congestion or œdema was met with in 45 cases (alone in 24 cases, associated with hæmorrhage or thrombosis at other parts of the brain in 21 cases). It is to be noted that most of the brains which showed meningeal hæmorrhage were also congested.

Of the four cases of *thrombosis of the longitudinal sinus*, one was a breech presentation and was still born; the rest were natural vertex presentations, two of which lived three days and one a few hours.

Œdema of the meninges of the brain was found in 12 cases. They varied in the duration of labour and in the presentation and mode of delivery. In none was the forceps used, and four occurred in cases of placenta prævia. The brain-substance was often found congested.

B. *Hæmorrhage into the Substance of the Brain.*

This rare lesion was met with once only in normally developed children and thrice in anencephalic fœtuses.

Case 23 was delivered with some difficulty by forceps. The frontal bones were very thin and depressible. The child lived seventeen days, and died of hæmorrhage into the pyramids of the kidneys. There was a deep bruise, produced by the forceps, in the skin over the right parietal bone; the bone was not fractured, but immediately under the skin bruise, at the inner part of the right frontal lobe and about one inch from the anterior extremity, was a hæmorrhage of the size of a filbert in the substance of the hemisphere near the upper surface.

There was a slight meningeal hæmorrhage over the seat of the apoplexy.

Microscopic examination showed the brain substance ploughed up by the effusion, and hæmorrhage on the surface of the brain beneath and within the substance of the pia mater and arachnoid.

In the anencephalic cases hæmorrhage into the medulla occurred twice, and into the cerebellum once.

c. *Hæmorrhage into and beneath the Membranes of the Brain.* (Pl. III, fig. 1).

This is by far the most important lesion of the brain, and has excited attention chiefly on account of the writings of Cruveilhier and McNutt. The greater part of the hæmorrhages were into and beneath the arachnoid and the pia mater, occasionally also between the dura mater and the skull, and sometimes into the tentorium cerebelli and the falx. Hæmorrhage into the pia mater or arachnoid was found in 53 cases, or 40·7 per cent.

(*a*) *Hæmorrhage over the convexity of the brain.*

(α) *Bilateral hæmorrhage* was found . 29 times.
Of which *general* bilateral hæmorrhage was found . . 18 „
Limited to temporo-sphenoidal lobes . . 4 „
„ upper part of cortex 4 „
„ parietal regions . 2 „
„ Sylvian fissures . 1 „

(β) *Hæmorrhage on the right side* was found . . . 10 times.
Of which *diffuse* hæmorrhage was found . . . 4 „
Limited to parietal regions . 3 „
„ Sylvian fissure . 1 „
„ Sylvian fissure and temporo-sphenoidal lobe 1 „
„ temporo-sphenoidal and occipital lobes . 1

DESCRIPTION OF PLATE III.

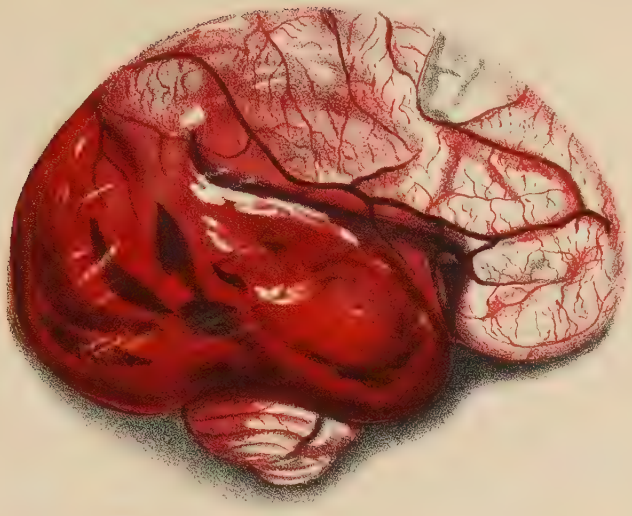
Illustrating Dr. Herbert Spencer's paper on Visceral Hæmorrhages in Still-born Children.

Fig. 1, Case 125.—A brain showing meningeal hæmorrhage (with several clots) over the right temporo-sphenoidal and occipital lobes. *Nat. size.*

Fig. 2, Case 17.—A kidney laid open, showing hæmorrhage into the loose connective tissue of the hilum; the pelvis has been slit up so as to expose the hæmorrhage. *Nat. size.*

Fig. 3, Case 23.—A section of a kidney showing hæmorrhage into the pyramids. (The infant died from suppression of urine on the seventeenth day.) *Nat. size.*

Fig. 4, Case 126.—A section of a liver showing extensive hæmorrhage beneath the capsule of the right lobe, which is compressed and flattened by the effused blood. The specimen had been preserved in spirit when the drawing was made; in the fresh state the hæmorrhage was black, and an inch and a quarter in thickness, and the liver dark red. *Nat. size.*



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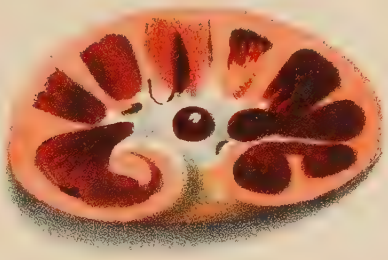

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(γ) *Hæmorrhage on the left side* was found . . . 10 times.
Of which *diffuse* hæmorrhage was found . . . 4 „
Limited to Sylvian fissure . 3 „
„ temporo-sphenoidal lobe 3 „

(*b*) *Hæmorrhage at the base of the brain* occurred . . . . 35 times.
Of which *diffuse* hæmorrhage occurred . 30 „
Limited to base of temporo-sphenoidal lobes . . . 3 „
„ surface of cerebellum . 2 „

In 6 cases the hæmorrhage was limited to the base, there being no intra-cranial hæmorrhage elsewhere.

(*c*) *Hæmorrhage into the ventricles* occurred . 7 times.
Into the right lateral ventricle . . 1 „
„ the left „ „ . . 1 „
„ both „ „ . . 2 „
„ both choroid plexuses . . 2 „
„ the fourth ventricle . . 1 „

The largest amount of blood found in the lateral ventricles was in the shape of a clot of blood of the size of half a pigeon's egg.

(*d*) *Hæmorrhage between the dura mater and the skull* was found in a few cases associated with fracture of the overlying bone. These hæmorrhages were usually of slight extent and thickness.

Mode of Presentation and Delivery of Cases with Meningeal Hæmorrhage.

Of the 53 cases of meningeal hæmorrhage I have notes of the presentation and delivery in 46.

By forceps were delivered . . . 11 cases.
As natural vertex were delivered . . 13 „
„ breech or footling were delivered . 15 „
(12 of these difficult).
„ face were delivered . . . 2 „
By version „ . . . . 5 „

Among the 130 bodies examined the forceps was employed fifteen times in vertex presentations. Of these 15 cases, 12 had cerebral hæmorrhage (11 meningeal, 1 intracerebral). Of the remaining 3 cases, 2 were dead before the forceps was employed. In the other case the forceps was merely applied to hold the head in the brim, and was not used to deliver, in a case of placenta prævia. We have here then the interesting and remarkable fact that cerebral hæmorrhage was found in every case in which the forceps was employed to deliver living children who died during or shortly after birth.

If we contrast with this the result of the normal vertex deliveries we find that only $\frac{1}{3}\frac{3}{8}$ths (or about one third) had cerebral hæmorrhage, and of this third nearly one half were not actually stillborn. Similarly in breech and footling cases $\frac{1}{2}\frac{5}{6}$ths, and in version cases $\frac{5}{1\,3}$ths had meningeal hæmorrhage.

The frequency of cerebral hæmorrhage would therefore seem to be greatest with forceps delivery and least with natural head delivery, and to be greater when the breech or foot presents naturally than after version. I have not notes of the duration of labour in all the cases, but hæmorrhage may occur in children born after the most rapid labours (18, 40, 101), and in very small and very large children (63, 93). The mothers may be primiparæ or multiparæ.

There are, however, two conditions to which I wish to draw special attention as determining causes of meningeal hæmorrhage, namely, *softness of the skull bones* and *increased mobility of the bones* from laxity of the sutures, and particularly of the lower edge of the parietal bone.

Instances will be found in Table I of hæmorrhage into the substance of the brain (23), and on the surface and base of the brain (26, 28, 91) occurring at the places where the bones are thin, and one (38) showed hæmorrhage only at the part where the bone was permanently depressed as a result of delivery through a contracted pelvis.

Where the sutures were lax, and the bones consequently

very moveable, hæmorrhage was noticed in many cases. As stated above, in eleven instances hæmorrhage was found limited to the parietal region or the Sylvian fissure, that is, to the part drained by the great anastomotic vein; in many of these cases it was obvious that the effusion was due to the clamping of the vein from the pressure of the lower anterior corner of the parietal bone, which immediately overlies the main trunk of the vessel. In other cases, where the hæmorrhage was more diffuse, it is more than probable that the depressibility of this part of the bone was an important factor in the causation of the hæmorrhage, though it was less demonstrable than in the cases just mentioned.

The above observation leads me to regard the part occupied by the lower anterior portion of the parietal bone as the most vulnerable part of the child's head. Indeed, the condition of the whole of the squamous suture is of the utmost importance to the welfare of the child. I have seen it so lax in a premature stillborn child that the lower edges of the parietal bones could be made almost to meet by transverse pressure with the fingers, so that the edges nearly cut the brain in two.

Besides these local causes of hæmorrhage, others act by producing fulness of the vessels of the brain, such as coiling of the cord around the child's neck, clamping of the internal jugular vein by the point of the forceps blade, and pressure on the neck by the parturient canal, of all of which instances will be found in the cases described.

The *general* causes of the hæmorrhage will be discussed later on.

Injuries to the Spinal Cord.

The spinal cord was examined in 44 cases only. In no case was there separation of the vertebræ.

In 5 cases the cord, membranes, and surrounding cellular tissue were normal; in none of these was traction employed; three were apparently natural vertex deliveries;

in one version was employed, followed by natural delivery; in 1 case the forceps was employed to hold the head in the pelvic brim, but not to deliver.

In 18 cases there was congestion or œdema:

Congestion of the whole spinal cord was noticed in	2 cases.
Congestion of the whole anterior cornua in	3 „
„ „ surface vessels in	7 „
Congestion and œdema of the cellular tissue outside the theca	9 „

In 30 cases there was hæmorrhage:

Outside the theca	21 cases.
Between dura mater and arachnoid	2 „
Into arachnoid	6 „
Beneath pia (in one case dipping into anterior fissure)	3 „
Into the whole thickness of the cord	1 „
Into anterior cornua (2 in lumbar, 1 in cervical, and one at various levels, but only one proved microscopically)	4 „
Into Goll's column in lumbar region	1 „

In 29 out of the 30 cases I have notes of the delivery.

There were delivered naturally as cephalic cases	6
„ „ „ breech or footling cases	13
„ „ artificially by version (in all traction was employed)	4
„ „ artificially by forceps	4
„ „ „ cephalotripsy	2

To compare with this, I give a table of the remaining 14 cases (in which the cord was examined and no hæmorrhage found). Of these:

There were delivered naturally as cephalic cases	10
„ „ „ breech or footling cases (1 an easy breech lived two days)	2
„ artificially by version (no traction)	1
„ „ forceps (dead before applied)	1

A comparision of these two tables, and the fact that, where hæmorrhage was found, the proportion of normal cephalic cases to cases presenting by the lower extremity (naturally or by version) is as 6 to 17, whereas in all the cases examined the similar relation is as 16 to 20, shows that spinal hæmorrhage is greatly favoured by the presentation of the lower extremity This is probably due partly to the greater compression undergone by the soft parts, and to the consequent driving of the blood to the central organs, and partly to the traction sometimes employed.

Microscopic examination of the *medulla* of Case 104 (anencephalus), at about a quarter of an inch from the upper end, shows hæmorrhage into the meninges, and numerous small hæmorrhages scattered over the surface of the section; the largest of these apoplectic foci are as big as small pin's heads. Examination of the *cervical cord* of the same case shows great congestion of the meninges and the escape of some blood into them. In the centre of the section is a large focus of hæmorrhage measuring a millimetre across, and there are several smaller foci scattered through the section. The hæmorrhages have rendered the section very friable. Examination of the *lumbar cord* of this case shows great congestion of the meninges (the vessels in the anterior fissure being particularly full), great congestion of the substance of the cord, and a few small scattered extravasations. The whole of one Goll's column is permeated with extravasated blood, the corresponding column on the other side being comparatively healthy. The large multipolar cells have the spaces around them dilated and occasionally filled with blood corpuscles, which sometimes press upon the cells and appear, in places, to have caused rupture of their processes.

Injuries to the Liver (see Table II).

Well-marked *congestion* of the liver was found in 54 cases. In 14 of these it was combined with hæmorrhage.

Hæmorrhage was found in 37 cases, *i.e.* in 28·46 per cent.

Hæmorrhage on the upper surface was found in	.	24 cases.
„ on the lower surface	.	8 „
„ on both surfaces .	.	3 „
„ at the posterior edge	.	2 „

Of the cases with hepatic hæmorrhage there were delivered :

As head presentations . .	.	13 cases.
As breech or footling presentations	.	8 „
By version . . .	.	5 „
By forceps . . .	.	3 „
By cephalotripsy . .	.	5 „
By decapitation . . .	.	1 case.
Conduplicato corpore . .	.	1 „

On comparing this with the table of the presentation and delivery of all cases, and on referring to the history of the individual cases, it is seen that hepatic hæmorrhage is but little dependent upon the mere presentation of the child (whether by the upper or lower pole), but rather upon the mode of delivery, and is especially liable to occur in those cases in which the liver is unduly pressed upon from any cause, such as the large size of the abdomen or the small size of the cervical canal or an impacted breech or shoulder.

These hepatic hæmorrhages are amongst the most striking phenomena met with in autopsies of stillborn infants. They have been noticed by Weber, Ancelon, and Birnbaum, and have doubtless attracted the attention of many other observers. They usually appear as large blebs filled with blood upon the upper surface of the liver, and generally nearer the anterior than the posterior edge ; they may be single or multiple, and vary greatly in extent.

The largest I have seen occupies the greater part of the upper surface of the right lobe, and measures nearly an inch and a quarter in thickness; it occurred in a case of breech presentation with extended legs, and was probably due to the pressure of the thigh upon the organ (Pl. III, fig. 4). The blood is usually under the capsule, which is raised up from the hepatic tissue, and occasionally, but rarely, is ruptured (26, 85). On the inferior surface the quadrate lobe seems especially liable to this form of hæmorrhage; I have three times found the hæmorrhage limited to this part. In one case I found a hæmorrhage on the upper surface of each lobe, accurately limited externally by the edge of the thorax on each side; in another specimen the hæmorrhage only occurred at the part of the left lobe which underlay a congenital gap in the left side of the abdominal wall. These cases seem to show that the hæmorrhage occurs in the area least supported, rather than at the point of greatest external pressure; but it may, of course, be produced by the direct injury of instruments, as in embryotomy (49). Sometimes the blood can be made to flow about under the raised capsule by changing the position of the organ; but usually the capsule is sufficiently tense to prevent this. When the bleb is pricked the blood is found to be fluid and dark, and, on slitting up the capsule, a blackish-red surface is exposed; but no laceration can usually be seen. In rare cases (10) the liver is extensively ruptured, and blood has escaped from the rupture into the abdominal cavity, and is partly coagulated between the edges of the tear.

In a few cases the posterior edge of the liver, where it is attached to the diaphragm, has a deeply bruised appearance (probably owing to its being the most fixed part). In a case of right-sided diaphragmatic hernia subcapsular petechiæ were found in that portion only of the liver which was within the thorax; they exactly simulated "Tardieu's spots" in the lungs.

Microscopic examination shows great dilatation of the capillaries, and extravasation of corpuscles and hæmo-

globin beneath the capsule and into the substance of the organ.

INJURIES TO THE KIDNEYS (see Table III).

Congestion of this kidney was noticed in 67 cases. The part of the organ in which congestion is most frequently met with is at the bases of the pyramids, where the large venous network exists. Next in frequency comes congestion of the whole organ; then congestion of the pyramids on one or both sides; least frequent is congestion of the cortex. Congestion and œdema of the connective tissue of the hilum is also not uncommonly observed, and I have found the small vessels inside and outside the pelvis and ureter greatly distended with blood.

Hæmorrhage was found in 38 cases:

Around the kidney or beneath the capsule in	13	cases.
Into the cortex . . .	4	„
Into the pyramids . . .	5	„
At the base of the pyramids . .	6	„
Into the hilum . . .	22	„

From this table it will be seen that the most frequent hæmorrhagic lesion of the kidney is effusion into the loose cellular tissue of the hilum (Pl. III, fig. 2); often some œdema of this tissue is also found. The blood can sometimes be seen externally as a black patch at the hilum of the organ, sometimes as an extensive effusion in that situation. On making a vertical section of the kidneys the blood is found to occupy the space around the pelvis of the organ between it and the overlapping renal substance, and, on microscopical examination, the fibre-like cells of this loose tissue are seen to be separated by red corpuscles. Hæmorrhage beneath the capsule was usually localised, and was once associated with hæmorrhage into the cortex of the organ (4). In this case it seemed to have been produced by pressure from without.

Hæmorrhage into the cortex appeared either as dark-

DESCRIPTION OF PLATE IV.

Illustrating Dr. Herbert Spencer's paper on Visceral Hæmorrhages in Still-born Children.

Fig. 1, Case 23.—A microscopic section (somewhat oblique) of a pyramid of the kidney, showing capillaries and tubules separated by effused blood, the tubules compressed, and some of the cells having the tubules in a state of necrosis. (*High power.*)

Fig. 2.—A microscopic section of the medulla of the supra-renal capsule, showing an early stage of hæmorrhage. The medullary cells are widely separated by the effused blood, and some of the cells appear to contain red corpuscles. (*High power.*)

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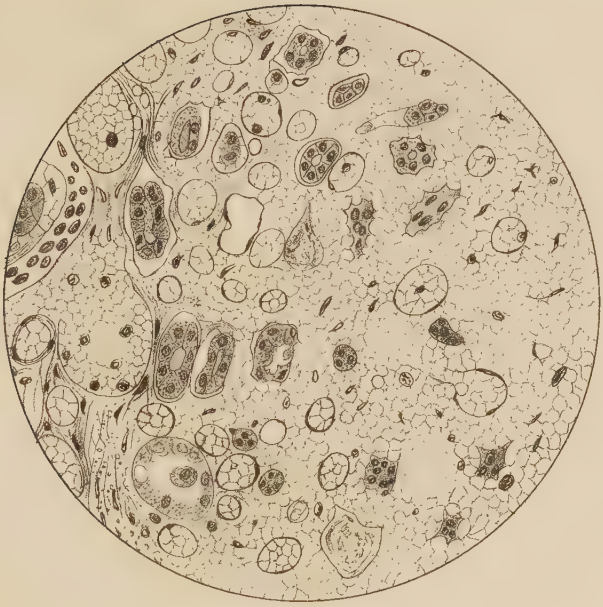

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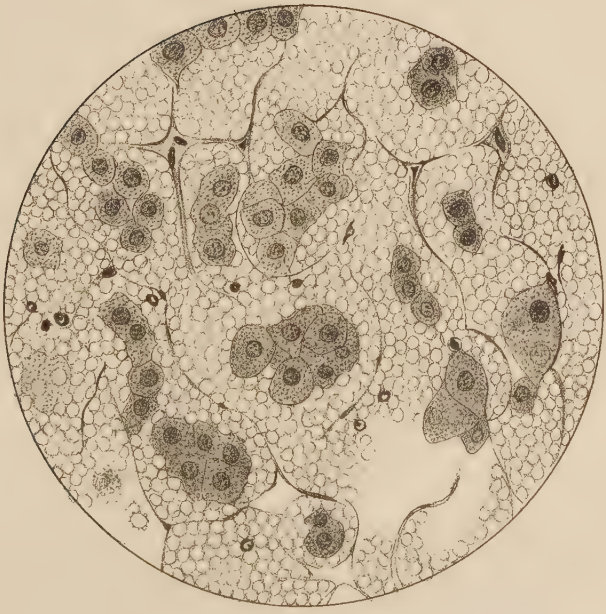

red mottling of this part or as dark-red streaks extending in from the surface.

Hæmorrhage into the pyramids occurred in 5 cases. In them the pyramids were of a dark-brown red, black-red, or almost black colour, were raised above the general surface when a section was made, and the effusion of blood had almost or completely obliterated the striated appearance which is so marked a feature in the healthy organ. In one case the hæmorrhage was confined to the apices of the pyramids, and in one to the apices in the upper part of one kidney.

These pyramidal hæmorrhages may cause suppression of urine in the first few days of life, as in Case 23 (for which I am indebted to Dr. Sydney Ringer) (Pl. III, fig. 3, and Pl. IV, fig. 1).

Of the 38 cases of renal hæmorrhage I have notes of the presentation and delivery in 34; they were as follows:

Natural head presentation . .	13 cases.
Natural breech or footling . .	14 „
Forceps	4 „
Podalic version. . . .	4 „

Since the number of cases delivered head-first is practically equal to the number delivered breech-first, while in all the cases examined the ratio of head presentations to breech presentations is as 58 to 39, it follows that renal hæmorrhage is favoured by breech or footling delivery.

Injuries to the Suprarenals (see Table IV).

Either congestion or hæmorrhage was observed in 53 cases, congestion (alone) being met with twenty-seven times.

Hæmorrhage around the organ was found in 6 cases, in 3 of which it was confined to the right side. A favourite seat is between the kidney and supra-renal, also in the sulcus on the anterior surface; sometimes it occurs behind the organ, and sometimes it completely envelopes it.

Hæmorrhage into the cortex and beneath the envelope was noticed on two or three occasions [Pl. V, fig. 1].

Hæmorrhage into the medulla occurred in . 24 cases.

„ „ on both sides in . 12 „

„ „ on the right side in 4 „

„ „ on the left side in 8 „

The hæmorrhage had burst through and extensively ruptured the capsule in 3 cases. Of these I have notes of the delivery in 2; they were large children, one weighed 8 lbs., was hydrocephalic, presented by the breech and was delivered by traction; the other weighed $8\frac{3}{4}$ lbs. and was delivered by version and traction through a contracted pelvis.

Of the 24 cases of hæmorrhage into the medulla of the supra-renal capsule, I have notes of the delivery in 22.

Of these were delivered as natural vertex . 7 cases.

„ „ as breech or footling 8 „
(7 with traction)

„ „ by podalic version . 4 „
(2 with traction)

„ „ by forceps . 2 „

„ „ by cephalotripsy . 1 case.

From this it will be seen that delivery by the lower pole (especially when traction is employed) greatly favours the production of this injury.

The normal supra-renal capsule in the new-born child shows on section a narrow, yellowish-grey cortex and a reddish-brown medulla, along the middle of which is a thin red line where the halves of the medulla are apposed, and in this line (usually about its middle) is a small, round, dark-red spot, which is the section of the central vein; occasionally there are two or more such veins along the central line.

When the medulla of the organ assumed a deep red or black-red colour encroaching upon the cortex, and differed thus very obviously from organs which show no injury (either to the naked eye or the microscope), the organ has been considered to be "congested;" in every case

DESCRIPTION OF PLATE V.

Illustrating Dr. Herbert Spencer's paper on Visceral Hæmorrhages in Still-born Children.

Fig. 1.—A section of a supra-renal body (preserved in spirit), showing hæmorrhage beneath the capsule. *Nat. size.*

Fig. 2, Case 38.—A section of a supra-renal body, showing three small hæmorrhages in the medullary portion. *Nat. size.*

Fig. 3, Case 6.—A microscopic section of a testis and epididymis, showing extensive hæmorrhage (self-stained orange) into the body of the testis; the epididymis is comparatively free from hæmorrhage. Some effusion of blood has occurred into the loose connective tissue at the back of the epididymis. (*Low power*; section stained with hæmatoxylin.)

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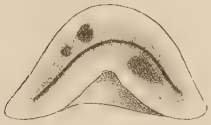

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where congestion is mentioned the condition was very distinct, and when the organ was ruptured externally by the effused blood, or converted into a sac of fluid blood, or its walls separated instead of being apposed, so that a wide line of a deep black-red colour was seen; or, again, where distinct spots of hæmorrhage existed in the organ, it has been placed in the table under "hæmorrhage."

The above limitation of the term congestion is, of course, arbitrary, and, indeed, by comparison with the organs of adults or young children, almost every supra-renal in the new-born may be described as "congested."

But the same might be said of most fœtal organs and notably of the liver, which differs very markedly in appearance at birth from that of the child even a few days old. This note will, I think, explain the slight discrepancy between my results and Mattei's (op. cit.) as regards the frequency of congestion.

In the greater part of the cases *medullary hæmorrhage* existed as a central black-red band of blood separating the walls, or as fluid blood filling out the organs. In 3 cases the hæmorrhage was *limited.*

In one of these (38) the organ (left) was of normal size, the walls were not separated, or but to a slight extent, and three small hæmorrhages of a black-red colour, varying in size from a grain of rice to a small pea, were found in the substance of the medulla (Pl. V, fig. 2); on the right side the organ was full of fluid blood. The case was a footling delivered by traction through a much contracted pelvis, the right side being pressed by the jutting promontory.

In the second case (52) the left supra-renal had its lower half only distended with blood. It also was from a case of contracted pelvis, and was delivered by cephalotripsy, the uterus having been for a long time tightly contracted around the body of the child.

The third case (89) showed hæmorrhage into both organs at the upper part. It was a breech presentation, and the head was delivered with difficulty by a midwife.

Microscopic examination of a supra-renal capsule in an

early stage of apoplexy shows the capillaries of the medulla widely distended by blood. The spaces containing the large medullary cells are in many cases flooded with blood which has escaped from the capillaries. Two or three large cells may be observed floating as it were in a pool of blood, and in their interior may be seen red corpuscles in the act of discharging their colouring matter, which adheres to the periphery of the corpuscle as minute yellowish beads, and gives a yellowish-brown colour to the medullary cells (Pl. IV, fig. 2).

In more advanced cases of hæmorrhage large masses of blood corpuscles are found collected in the central portion of the organ.

Injuries to the Lungs (see Table V).

Excess of fluid was found in the pleura in 14 cases, in 9 of which the fluid was either stained with blood or was nearly pure blood. The blood had usually escaped from the surface of the lung.

Congestion in some part of the respiratory tract (larynx, trachea, or lungs) was found in 36 cases. The larynx is specially noted as congested in 2 cases of face presentation, in 3 forceps deliveries, in 2 natural vertex, and 1 breech presentation. The congestion of the lungs is most frequently met with at the lower lobes, and especially at their thin edges.

Hæmorrhage was observed in 43 cases.

It occurred as sub-pleural petechiæ or hæmorrhages in 25 cases = 19·23 per cent.

It occurred as hæmorrhage into the lung-substance in 23 cases = 17·7 per cent.

Sub-pleural petechiæ ("Tardieu's spots") may exist at any part of the surface of the lungs or between the lobules. Hæmorrhage into the substance of the lung may also occur at any part; but its most frequent site is the base, and particularly the thin lower edge; it may also

occupy the greater part or the whole of one lobe, or the lung on one or both sides.

The thin lower edge, when affected with hæmorrhage, has a black appearance; the apoplectic portion is usually about a quarter to half an inch in width, and extends for a variable distance along the edge. When a lobe is affected the organ is black-red or dark bluish-red in colour, heavy, liver-like, and friable to the feel, and exudes blood on pressure. When an extensive area is injured the rib-marks can sometimes be seen as paler streaks on the dark-red surface, and hæmorrhage then often occurs extensively beneath the serous covering, and sometimes it bursts into the pleural cavity.

On three occasions the hæmorrhage occurred at the apex of the lung—all three cases of difficult delivery by the breech.

The mode of delivery of the 23 cases of intra-pulmonary hæmorrhage was as follows:—

By the head, 6 (only 1 normal, 2 having large bellies, 1 being a first twin, and 1 being forty-eight hours in delivery).

By the breech or feet, 10 (most with traction).

By podalic version, 2 (1 contracted pelvis, 1 placenta prævia).

By forceps, 3 (1 contracted pelvis, 1 placenta prævia, 1 prolapse of cord).

By cephalotripsy, 1.

By decapitation, 1.

It will thus be seen that breech and footling delivery greatly favour the occurrence of pulmonary hæmorrhage, the effect being probably due to incomplete dilatation of the parturient canal, to squeezing of the blood into the upper part of the body, to the direct pressure of the canal upon the thorax, especially when the arms are extended, and to traction in the trunk or limbs.

Case 16 is interesting as showing hæmorrhage into the substance of the lung on the presenting side in a neglected shoulder presentation (see Abstract).

Microscopic examination of the thin edge of the lung affected with apoplexy shows the pleura raised up by blood effused beneath it and into its substance; hæmorrhage is also seen extending along the fibrous septa of the lung and in the loose sheath of the larger vessels. The capillaries are greatly gorged with blood, and in places appear to be ruptured. Hæmorrhage has also occurred into the alveoli and into the smaller bronchioles (Pl. VII, figs. 1—3).

These pulmonary apoplexies appear to be of the greatest importance, and to be the cause of many deaths in children in the first few days after birth; they will undoubtedly give rise to pneumonia, as in Case 2. The children who are the subject of them are usually cold and blue (2, 31), with a subnormal temperature, whining, and refusing the breast; as physical signs I have found dulness, weak breath-sounds, and bubbling râles. I believe the death is sometimes attributed in these cases to congenital heart disease, the real cause of the cyanosis having been overlooked.

Injuries to the Testis and Spermatic Cord (see Table VI).

Congestion of the testis, scrotum, or spermatic cord was observed in 37 cases, which number does not include those in which a *slight* amount of congestion of the scrotal tissues occurred.

Hydrocele of the tunica vaginalis was met with six times.

Hæmorrhage into the testis occurred in 15 cases, that is, in 19·23 per cent. (of the male children). The hæmorrhage occurred:

Into the whole of both organs	9	times.
Into the whole of one organ	3	,,
In scattered patches in the right organ	1	,,
In the mediastinum testis	2	,,

Hæmatocele of the cord occurred in 5 cases.

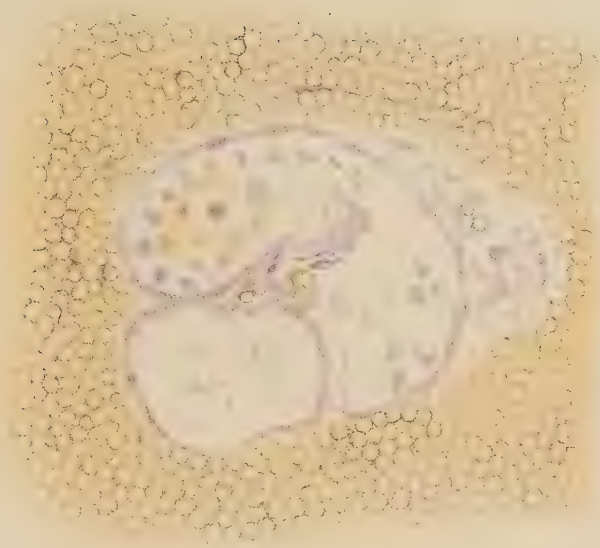
Hæmatocele of the tunica or processus vaginalis in 3 cases.

DESCRIPTION OF PLATE VI.

Illustrating Dr. Herbert Spencer's paper on Visceral Hæmorrhages in Still-born Children.

Fig. 1, Case 6 (see also Plate V, fig. 3).—A microscopic section of a lobule of the testis, showing the lobule surrounded and apparently compressed by effused blood. The cells lining the seminiferous tubules appear to be disorganised, take the logwood stain but feebly, and have fallen out in places. (*High power.*)

Fig. 2, Case 6 (see also Plate V, fig. 3).—A microscopic section of a loop of the epididymis, with (normal) dense connective tissue around it. The columnar epithelial cells are healthy and take the stain well. The hæmorrhage (which was small in amount; see Plate V, fig. 3) is not shown in the figure. (*High power.*)



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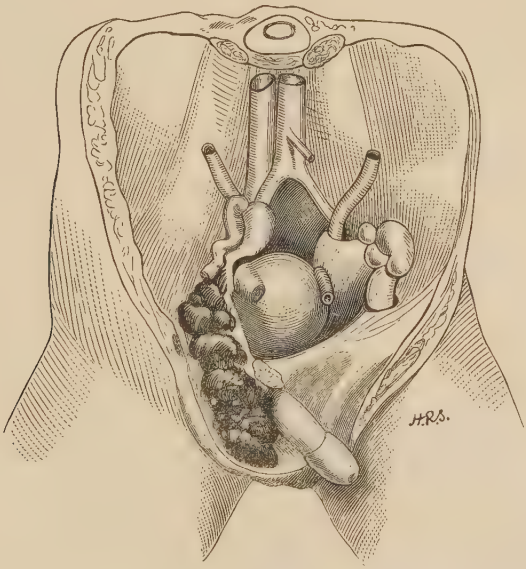
Of the 15 cases of hæmorrhage into the testis I have notes of the delivery in 14, as follows:

As breech or footling	.	8 cases (6 with traction).
As vertex	.	1 „
As (?) face	.	1 „
By forceps	.	3 „
Conduplicato corpore	.	1 „

From this table it will be seen that breech and footling deliveries greatly favour hæmorrhage into the testis. The healthy spermatic cord in the new-born child is seen as a thin black-red streak of the thickness of twine passing down into the scrotum. Under difficult delivery (particularly by the breech) this cord may swell until it attains the size of a crow-quill or even more; often the cord on one side is fuller than the other.



Hæmorrhage into the processus vaginalis and cord, in a case of right footling presentation delivered by traction (Case 58).

In certain rare cases (6, 18, 58, 127) an effusion of blood may take place into the tissues of the cord, attaining

the size of a peeled almond, or extending the whole length of the cord, or filling up the processus vaginalis [as shown in the above Woodcut]. Under the microscope the loose tissue of the spermatic cord is seen to be everywhere infiltrated with blood, and the veins to be greatly distended. This grave injury may possibly explain certain cases of non-descent of the testicle when it occurs before the organ has left the abdomen (as in the museum specimen exhibited).

The healthy testis of a new-born child is a small lilac-grey organ, nearly a centimetre long and half a centimetre broad. On cutting into it the section is of a dark pink colour.

When the organ is congested, or has blood effused into it, the colour of the *tunica albuginea* becomes much darkened till it may assume a dark-blue aspect, and sometimes enlarged veins may be seen just beneath the surface. On section the testis is then found to be of a dark brown-red, black-red, or even quite black colour (according to the amount of blood effused), and the cut surface bulges from the capsule. In some cases the hæmorrhage will be found in small scattered patches; in others it radiates in the mediastinum. Often the brown-red streaks seen in the mediastinum are merely dilated vessels without actual effusion. In some cases it can be observed with the naked eye that the blood is collected mainly under the tunica albuginea; this is usually very obvious to the naked eye on holding a microscopic section to the light.

The epididymis is much less affected by congestion or hæmorrhage, probably owing to its denser structure. On microscopic examination with a low power there is found great congestion of, and hæmorrhage into, the hilum of the testis, and blood is effused extensively into the connective tissue of the body of the gland (Pl. V, fig. 3). The colouring matter of the blood collects beneath the capsule as an orange-coloured deposit, and in places, in the body of the organ, it shows a tendency to crystallise. Congestion of, and hæmorrhage into, the epididymis is also found; but the injuries to this structure are strikingly less than those of the testis.

DESCRIPTION OF PLATE VII.

Illustrating Dr. Herbert Spencer's paper on Visceral Hæmorrhages in Still-born Children.

Fig. 1, Case 47.—A microscopic section of the thin edge of the lower lobe of the lung, showing extensive hæmorrhage beneath the pleura and into the substance of the lung. (*Low power.*)

Fig. 2, Case 47.—A microscopic section showing hæmorrhage into the alveoli of the lung. (*High power.*)

Fig. 3, Case 47.—A microscopic section showing hæmorrhage around and into a bronchiole. (*High power.*)

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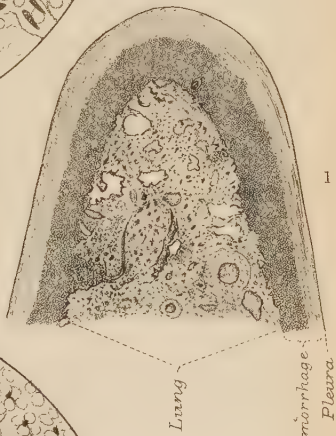

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West, Newman lith

Under a high power the whole section of the testis is permeated with red blood-corpuscles, and the lobules of the gland appear to be compressed by the effusion and their cells are distorted, indefinite in outline, and are falling out in places (Pl. VI, fig. 1). Occasionally blood-corpuscles are intermingled with the cells of the gland.

The cells lining the epididymis are, on the other hand, unaltered by the small amount of blood effused in the dense surrounding tissue (Pl. VI, fig. 2).

Injuries to the Uterus, &c. (see Table VII).

Congestion of the uterus occurred thirteen times. It is usually seen as fulness of the sub-peritoneal vessels of the uterus, but also occurs in the mucous membrane of the body or cervix, and sometimes in the ovaries and tubes.

Hæmorrhage into the uterine tissue was met with five times (twice into the mucous membrane of the body or cervix, and three times into the sub-peritoneal tissue and into the superficial parts of the organ). Two of these 5 cases were delivered as normal vertex cases and, one of them weighed only 1 lb. 7 oz., the other child was suffering from septicæmia, which was the cause of the effusion. The remaining 3 cases—the only ones in which hæmorrhage occurred into the mucous membrane of the body —were all difficult breech cases.

Hæmorrhage into the cellular tissue around the orifice of the vagina and into the labia was noted in 2 cases, both born with difficulty by the breech.

Under the microscope I have been able to demonstrate hæmorrhage into the sub-peritoneal cellular tissue and the loose fibro-muscular tissue at the surface of the uterus, but I have not succeeded in showing the hæmorrhage into the mucous membrane, even in cases where blood could be seen with the naked eye oozing into the cavity of the organ from the mucous uembrane, which was of a black-red colour for a depth of $\frac{1}{32}$ in. The difficulty of showing hæmorrhage in this situation in new-born children depends

partly upon the tissues not being absolutely fresh, and partly upon the rapidity with which the corpuscles lose their colouring matter and break up into a granular *débris*.

Injuries to the Spleen (see Table VIII).

Congestion was noticed in 21 cases, in 4 of which it was intense, even to blackness ; in one of these it was disseminated, in the others diffuse.

Hæmorrhage was found in 3 cases only. One of these (61), a natural vertex presentation, died convulsed three hours after birth. In the second (102) there was great general congestion of the organ, and in two places the capsule had been raised up by effusion of blood beneath it [Pl. VIII, figs. 2 and 3]. The child presented by the vertex, and died suddenly fifteen minutes after the establishment of respiration. The third case (127) was a face presentation, and there was extensive hæmorrhage into the substance of the spleen (Pl. VIII, fig. 1) and also beneath its capsule on the inner and outer surface.

Microscopic examination showed the whole organ packed with red blood-corpuscles, not the smallest space being free from them. They were less abundant in the Malpighian bodies on account of the closer texture ; but they could also be seen there on careful examination. Under the capsule the blood has collected in several places, and the blood-colouring matter has a great tendency to accumulate there. Cases 61 and 127 also show beautifully the crystallization of the hæmoglobin in the central portions of the organ.

The rarity of splenic hæmorrhages—3 cases out of 130—may probably be explained by the small size, deep position, mobility and distensibility of the organ. I may here, however, mention that I have twice in stillborn children found spleens measuring three inches in length and quite free from hæmorrhage.

DESCRIPTION OF PLATE VIII.

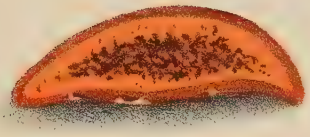
Illustrating Dr. Herbert Spencer's paper on Visceral Hæmorrhages in Still-born Children.

Fig. 1, Case 127.—A section of a spleen (preserved in spirit) showing hæmorrhage into the substance of the organ. The whole organ is suffused with blood, the pale middle band being the part least affected. The dark outer band is full of blood corpuscles with their colouring matter. The darkest (central) portion contains a large quantity of hæmoglobin crystals. *Nat. size.*

Fig. 2, Case 102.—A spleen (preserved some days in spirit) showing two hæmorrhages beneath the capsule. *Nat. size.*

Fig. 3.—A section through the same specimen (fig. 2) showing the thickness of the effused blood. *Nat. size.*

Fig. 4, Case 107.—The colon and ileum showing extensive effusion of blood (clotted) into the wall and lumen of the cæcum, and two small sub-peritoneal hæmorrhages on the ileum. (The hæmorrhage into the cæcum produced intestinal obstruction, from which the infant died on the fourth day.)



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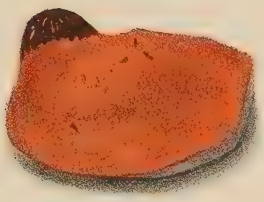

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Injuries to the Stomach.

The stomach was examined in 66 cases only. It usually contained mucus and often, in addition, a curdy-white or flocculent material, sometimes bubbles of air, and occasionally meconium. The summits of the rugæ were often marked out by rows of little red points; but well-marked congestion was rarely found (117). In 5 cases there was blood in the cavity of the organ (2, 31, 69, 105, 108). In 4 of these the blood had apparently been swallowed, having come from the lungs; none of these were stillborn. In the fifth case (cephalotripsy) the blood had apparently flowed into the stomach from the crushed base of the skull. In only 1 case was there apparent disease of the mucous membrane (31). In this case (which was delivered by the breech and lived four days) there were numerous little ulcers of the size of No. 6 shot scattered over the lining membrane. Of the 5 cases in which the stomach contained blood, 3 were breech or footling deliveries, 1 a natural vertex, and 1 a case of cephalotripsy.

Injuries to the Intestines

The œsophagus was examined in nearly all cases. Congestion, especially of its upper or lower end, was common, but no hæmorrhage was found.

The duodenum was several times observed to be greatly congested, of a dark brown-red or black-red colour. In 1 case (117) there was hæmorrhage into the mucous membrane, and the blood had escaped from its surface in sufficient quantity to stain the pulpy contents a red-brown colour. In two or three instances there was found intense congestion of, and hæmorrhage from, the mucous membrane of the jejunum and ileum, usually in several distinct places; the escaped blood was generally mixed

with the intestinal contents. The large intestine was affected with apoplexy in 1 case only (107). In this case the extravasation had occurred into the wall of the cæcum, and had then burst through the mucous membrane and filled the cæcum and adjacent part of the ileum (Pl. VIII, fig. 4). The blood was clotted and completely obstructed the gut. Two subperitoneal hæmorrhages of small size were found on a coil of small intestine which lay near the cæcum. The mother of this child was a multipara; the labour lasted forty-eight hours, the membranes having been ruptured many hours before delivery. The infant vomited meconium a few hours after birth, and at intervals, on eight occasions, until its death on the fourth day. No swelling could be detected by abdominal examination; neither did the finger feel anything abnormal in the rectum, but it was stained with a spot of blood. A small enema was followed about an hour later by the passing of a little meconium; but the child continued to vomit at long intervals, and died on the fourth day.

In this case the prolonged labour had probably caused the hæmorrhage by pressure against some part of the parturient canal.

Intestinal obstruction, due to hæmatoma of the intestine, has I believe not hitherto been described. A case of hæmorrhage in the cæcum has been reported by Dorrington (op. cit.).

Other pathological conditions found were excess of serum (or even blood) in the peritoneal cavity in several cases, retro-peritoneal and mesenteric hæmorrhage or congestion of the peritoneum. In no fresh stillborn child was actual peritonitis observed.

Injuries to the Heart.

Sub-pericardial petechiæ and hæmorrhages were frequent. In 3 cases (57, 123, 130) there were found curious

little hæmorrhages into the valves of the heart, which were thicker and redder than normal. The hæmorrhages were situated near the free edge of the valve, and looked like small black shot embedded in its substance. Twice they affected the tricuspid and mitral and once the pulmonary valves.

Injuries to the Thymus, Thyroid, Submaxillary, and Parotid Glands.

These organs were congested in many cases.

In the thymus sub-capsular hæmorrhages are not rarely found; in one case hæmorrhage had occurred into the substance of the gland.

The *parotid gland* was found to be the seat of extensive hæmorrhage in 2 or 3 cases. A careful dissection of the gland in one of these showed the facial nerve to be firmly embedded in the part of the gland into which hæmorrhage had occurred. This effused blood would evidently produce considerable pressure on the trunk of the facial nerve, and I believe that in this way is to be explained the production of many cases of facial paralysis in the new-born child. I found this parotid hæmorrhage very copious in a case in which one blade of the forceps had (as is so commonly the case) embraced the parotid region.

Injuries to the Skin, Subcutaneous Tissue, and Muscles.

Hæmorrhage into the skin and subcutaneous tissue was found in many bodies. Thus, in the scalp, it almost always occurred to a greater or less extent; bruises produced by the forceps were several times met with. In the arms it was observed as the result of pressure during version; in the trunk as the result of gripping by the cervix, and very commonly in the lower extremities when

traction had been made by the leg, under which condition it is rarely absent.

Hæmorrhage into the muscles was frequently observed, most commonly into the muscles of the lower limbs in cases of traction by the leg, into the muscles of the buttock (in breech presentation and version), into the muscles of the trunk, and chiefly into the erector spinæ and pectorales (in bodies which had been gripped by the cervix or the hand of the attendant), and into the superficial and deep muscles of the neck. Of these muscular lesions the most interesting is *hæmorrhage into the sterno-mastoid.*

This injury I found in 8 bodies (48, 63, 85, 91, 95, 98, 116, 128); in 4 it occurred on the right side and in 4 on the left. The weight of the children varied from 14½ oz. to 8 lbs. 2 oz. Six were delivered with difficulty by the breech or feet, 1 was a natural vertex delivery, and 1 was delivered by the forceps. In all the 6 cases delivered by the lower extremity traction was employed; of the natural vertex case I have no note of traction; perhaps it was used, as accidental hæmorrhage occurred in the mother. The case delivered by the forceps had the hæmorrhage into the lower part of the left muscle, and it was due to pressure upon and stretching of the muscle by the point of the forceps-blade, the skin being bruised in the same situation, while the omo-hyoid muscle underlying it was uninjured.

Hæmatoma of the sterno-mastoid is an injury of much importance; it is met with in young children, not uncommonly as an indurated swelling of the muscle, generally known as a "sterno-mastoid tumour," and it is the cause of temporary, and probably also of permanent, wryneck. It has attracted the attention of many observers (see Tordeus, op. cit.), and it is probably usually due to great stretching of the muscle during delivery, particularly when traction on the child's shoulders is employed; sometimes it is caused by pressure by the blade of the forceps, and occasionally it occurs in cases of natural vertex delivery.

PART IV.

The Causes of the Visceral Hæmorrhages in Stillborn Children.

The hæmorrhage must have as cause one or more of three factors :—(1) Thinness and weakness of the wall of the blood-vessels. (2) Alteration of the blood rendering it more prone to escape. (3) Increased blood-pressure from (*a*) asphyxia or other vaso-motor disturbance or from pressure on veins, (*b*) squeezing of blood into some parts of the body in the act of birth, (*c*) external violence rupturing the vessels at the point pressed upon.

1. *The vessel-wall.*—If we look at the list of organs in which hæmorrhage occurs we shall find this most frequent and most severe in those viscera which contain a large quantity of delicate vessels (meninges, liver, lungs, kidneys, suprarenals) ; that in these same organs the hæmorrhage is most frequent and most severe where the vessels are most numerous and most delicate, and but feebly supported by the surrounding tissues. It is also observed that with equal difficulty of delivery the hæmorrhage is apt to be more severe the younger the fœtus is, that is to say, the more delicate is the structure of the vessels and surrounding tissues. We cannot doubt then that the delicacy of the walls of the capillaries and small vessels is an essential factor in the causation of these hæmorrhages. My observations are as yet incomplete on the question as to whether syphilis so weakens the vessels in new-born children as to lead to escape of blood from them. I have, however, observed a case in which the mother was the subject of recent syphilis, and the child presented the characteristic bone-lesions of the disease, and yet there was no hæmorrhage. Moreover, I have not succeeded in finding in the apoplectic areas evidence of vascular syphilis. That syphilis *alone* does not cause the effusions

is obvious from their frequency and the sites at which they occur. Indeed, given a difficult labour, the position of the hæmorrhages may be inferred with some certainty. The great probability is that syphilis has no influence in causing the apoplexies under discussion. That a general disease allied to septicæmia can in young infants produce hæmorrhages is well known. But in the stillborn children under discussion there is no evidence of such a general disease, the lesions are essentially localised, and I regard the normal delicacy of the fœtal vessels as the one essential feature in the causation of hæmorrhage. A single glance at a microscopic section of a congested fœtal organ, such as the lungs, is sufficient to excite our wonder that hæmorrhage does not occur in every instance, so exquisitely fine is the line of the capillary-wall.

2. *Alteration of the blood* rendering it more prone to escape. In the absence of evidence of such alteration, and in view of the facts that the blood corpuscles escape in bulk from the vessels, and that the hæmorrhages are localised, this cannot be admitted as a cause or, at least, not as an immediate cause of the hæmorrhage.

3. *Increased blood-pressure.*—(*a*) *from asphyxia.* This condition which has generally been credited with the causation of the majority of stillbirths I believe to be on the whole rare as the immediate cause. True asphyxia I believe to be the "*asphyxia livida*" of authors, and of this instances are to be met with in the cases I have described. "*Asphyxia pallida*" I am inclined to believe not to be asphyxia at all, but to be really a state of syncope and shock, the result of hæmorrhage and injuries to the viscera.

That true asphyxia can occasion apoplexy we know quite well from observation of its effects upon the organs (chiefly the meninges) of adult subjects. That it is not the sole or indeed a frequent cause of the hæmorrhages in stillborn children may be inferred from observing that in many cases there is not, as a matter of fact, a single sign of asphyxia in the bodies; again, a child may be

born suddenly by a single pain, dead, and presenting numerous visceral hæmorrhages ; here there was not time for the production of asphyxia as usually understood. Moreover, there is the fact, that in the absence of all signs of asphyxia, pressure from without—either by instruments, the parturient canal, or the doctor's hand—may give rise to hæmorrhage at the part pressed upon.

Again, I have seen children born easily, in a state of the most intense livid asphyxia (in cases of prolapse of the cord, congenital disease of the heart, &c.), and showing no hæmorrhages on post-mortem examination. It may, I think, also be stated generally that where the labour is easy, in spite of asphyxia in the child, the hæmorrhages will be absent or of slight degree. It is, moreover, a daily experience to find children born profoundly asphyxiated, but alive, and easily in a few minutes provoked to healthy and vigorous life. Many of the children described in the foregoing pages have shown no clinical sign of asphyxia just before birth, and yet have been born dead and showing visceral hæmorrhages.

If we consider, on the one hand, the force which the uterus exerts on the body of the child—sufficient to paralyse the arm of a strong man ; and on the other hand, the softness and delicacy of the infant's tissues and the readiness with which it resents the slightest injury ; I think it far more reasonable to attribute the death, in cases in which there is hæmorrhage, to shock as a result of the injuries to the viscera than to asphyxia and asphyxia alone. When combined, however, with the other causes, asphyxia will no doubt render the hæmorrhages more frequent and more severe.

Besides the general condition of asphyxia it is possible that a vaso-motor influence is exerted on the viscera through the injuries to the central nervous system, but of this there is no clear evidence in the cases before us.

Pressure upon veins (*e.g.* jugular and spermatic) will cause a congestion of the distal area, and thus favour the

production of certain hæmorrhages, as in the brain and testicle.

(*b*). *Mechanical squeezing of blood into some parts of the body during the act of birth* is probably a frequent cause of hæmorrhage.

In labour, with the cervix undilated and the membranes ruptured, the general tendency of the uterine contractions will be to produce a determination of blood to the central organs of the child's body.

And, when the cervix dilates, the tendency will be partly to repress the blood towards that portion of the child which is contained in the body of the uterus, and partly to force it into the presenting part, on the principle of the formation of the caput succedaneum.

In cases of breech presentation this repression of blood will be greater on account of the small size and softness of the presenting part, and will be especially well marked where traction on the limbs is employed ; this traction has the hydraulic effect of forcibly driving the blood into the upper parts of the body, and explains the production of hæmorrhages into the apices of the lungs as well as (to some extent) into the meninges of the brain.

(*c*). *External violence rupturing the vessels at the point pressed upon.*

There are in the cases described in this paper many instances of this source of hæmorrhage, both in the limbs as the result of pressure by the hand of the accoucheur in making traction, and in the superficial and deep parts of the trunk and head from pressure by the hand, instruments, or parturient canal. It is difficult to convey in words a correct idea of the way in which this is produced in individual instances ; the explanation is usually easy with the child's body in one's hands. I will here merely mention, as instances, apoplexy of the lung produced by pressure of the rigid cervix on the child's thorax (the hæmorrhage occurring at the seat of pressure which was indicated by a deep livid band in the skin) ; hæmorrhage under the capsule of the liver in a case of breech

presentation with extended legs, from pressure of the thigh upon the subjacent organ; meningeal hæmorrhage, limited to the area over which the bone was depressible; and intra-cerebral hæmorrhage, limited to the part pressed upon by the point of the blade of the forceps.

PART V.

The following practical conclusions may, I think, be fairly drawn from a consideration of the foregoing observations:

I. In children stillborn or dying shortly after birth, congestion or œdema and hæmorrhages are usually found in various important viscera.

II. These hæmorrhages occur in cases delivered naturally or by version or forceps, in normal and abnormal pelves, with primiparæ or multiparæ, in large and small children, in "easy" and difficult, rapid and prolonged labours.

III. The hæmorrhages are, however, most frequent and most severe in children subjected to much pressure by the parturient canal, or instruments, or the hand of the attendant, especially when delivered by the lower extremity.

IV. Cerebral hæmorrhage is more frequently found in stillborn children delivered by the forceps than in those born by the breech, and in these latter more frequently than in those born naturally by the head.

V. Hæmorrhage into most of other viscera is more frequently met with in pelvic than in cephalic presentations.

VI. These hæmorrhages and the accompanying injuries are in many cases the cause of the stillbirth, and, when not immediately fatal, may be followed by the gravest consequences.

VII. They are most likely to be avoided by preventing premature rupture of the membranes, by artificial dilatation of the parturient canal (when necessary), by restricting the employment of version and other artificial manipulations to urgent cases, and by preferring cephalic to podalic version in cases suitable for the former.

VIII. The use of the forceps should be absolutely limited

to cases in which there exists some pressing danger to mother or child, and it should never be employed merely to shorten the time of labour.

IX. In breech presentations examination of the genital organs of the child should be carefully avoided during delivery. As soon as the child's limbs are born they should be wrapped in a thick layer of antiseptic wool (which keeps the child warm, and prevents the hand from slipping, and protects the limb from pressure). If traction is necessary it should be made over wool wrapped around the child's limbs or *pelvis*. It should never be made by the hand around the child's *waist*.

X. In delivering the after-coming head care should be taken that the sterno-mastoid muscles are not unduly stretched or pressed upon. In cases where the after-coming head is in the pelvis, where there is even slight diffculty, resort should be had to forceps to deliver.

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Dr. JOHN PHILLIPS testified to the enormous amounts of facts which were detailed in the paper, making the discussion of any particular portion very difficult. He noticed that Dr. Spencer enumerated, among the conditions tending to visceral hæmorrhage, thinness or weakness of the vascular wall. He would like to ask whether Dr. Spencer had ever met with a labour in a hæmophilic woman. Hæmophilia was essentially a congenital hæmorrhagic disorder, and although the condition of vascular wall leading to the hæmorrhage was at present not understood, yet it certainly would be one cause of visceral hæmorrhage. Dr. Phillips had himself never met with or read of such a case. He had observed two cases which were identical with those read by Dr. Spencer. The first case was a breech presentation with pelvic contraction, in which considerable force had been used to complete extraction, the two thighs being dislocated. At the necropsy the right lobe of the liver was found to be encroached upon by a large clot under its capsule. The second was that

of a child born quite naturally and easily, which began to vomit gummous blood immediately after birth, a condition which lasted up to its death forty-eight hours after. Dr. Phillips quite agreed with the author of the paper that many cases of so-called "asphyxia deaths" were really due to internal hæmorrhages.

Dr. Herman said that Dr. Spencer's paper was of the highest class, for it contained facts, and did not consist of speculations, opinions, or guesses. He did not know of any work upon this subject which contained such a large number of facts, and of such carefully observed facts as, this paper of Dr. Spencer's, which would add greatly to the value of the volume of 'Transactions,' in which it would appear. Those present at this meeting were additionally indebted to Dr. Spencer, not only for his laborious collection of facts, and his able analysis of them, but for the remarkably beautiful collection of specimens, microscopic sections and drawings with which he had illustrated his paper, and enabled those present to convince themselves of the accuracy of his descriptions. It was not possible to controvert Dr. Spencer's facts, but as to one of his inferences from these facts, he (Dr. Herman) ventured to differ from him. Dr. Spencer said, in conclusion of his abstract, that the forceps "should never be employed merely to shorten the time of labour." He (Dr. Herman) thought that perhaps the commonest indication for forceps was weakness of the pains in the second stage of labour. In cases in which there was no pelvic deformity, nor disproportion between the child's head and the pelvis, the os uteri was fully dilated, and delivery was slow, simply because the pains were too weak to quickly overcome the resistance of the pelvic floor, so that the second stage, if aid were not given, would last four or six hours, or more. It might be correctly said that the forceps was employed "merely to shorten the time of labour." He thought that the use of forceps in cases of this kind was good practice, and that if the instrument were used with proper care and skill, evil results did not ensue from it. He thought that if we were able to ascertain the practice of accoucheurs all over the country, we should find that the forceps was used oftener on account of the condition he had described than for any other indication, and that those who so used it did not find that it harmed the child. He gathered that Dr. Spencer did not think that the proper and skilful use of the forceps was so very injurious, for he recommended this mode of delivery when the after-coming head was delayed, and he (Dr. Herman) quite agreed with him in this recommendation. Each obstetrician would be more skilful in the mode of delivery of the aftercoming head which he more frequently practiced; and his preference, like Dr. Spencer's, was for the forceps. Dr. Spencer's dissections brought out the fact that injuries to the brain were most common in children delivered with forceps than in children delivered naturally. Dr. Herman

thought that this fact probably signified that the forceps was used in the worst cases, so that the injuries were due, not to the forceps, but to the conditions which had made forceps delivery necessary, as in Cases 3, 28, 34, 60, 79, 84, in Table I.

Dr. PETER HORROCKS related three cases in which, after podalic version and delivery by traction, the children had made no attempt at respiration, although the heart was beating. In one of these, an attempt was made to catheterize the trachea, but the catheter passed down the œsophagus, and the stomach was filled with air, so tracheotomy was performed, and the child's heart was kept beating for an hour and a half. Before tracheotomy the pulse had fallen to ten per minute, afterwards it rose to 130 per minute, and finally decreased slowly in rate until it stopped. During all this time no effort whatsoever at respiration was made by the child, and on making a *post-mortem* examination hæmorrhage into the fourth ventricle of the brain was found. In the other two cases there was also hæmorrhage into the fourth ventricle, and in one of them on the surface of the brain also. Dr. Horrocks had considered the total absence of all efforts at respiration to be due to pressure on, or damage to, the respiratory centre in the medulla oblongata or bulb. In conclusion, Dr. Horrocks asked what was meant by œdema of the cord.

Dr. DAKIN thought that this very interesting paper had, in addition to its purely obstetrical aspects, an important bearing on infantile life and infantile diseases. The conclusion was obvious that if hæmorrhages occurred so universally in stillborn children and those dying soon after birth, as was shown to be the case in Dr. Spencer's most valuable paper, and if they occurred in cases where labour had been natural, they must also occur very frequently in children who survived, and subsequently reached maturity, especially if labour had been difficult. In the latter cases the hæmorrhages might be numerous or large, or both, and if they were situated in tissues that were not vital, such as the muscles and cellular tissue, especially the subcutaneous cellular tissues, they would not very materially affect the child's welfare. He asked if Dr. Spencer agreed with some other authorities in the opinion that these extravasations were a cause of the milder cases of infantile jaundice, by the absorption of their blood-pigment into the general circulation, and consequent staining of the tissues. Dr. Dakin noticed that out of twelve or thirteen cases in the tables which survived only three days, only two were jaundiced. More interesting still, however, were the congestions and hæmorrhages described as existing in the uterus and its lining membrane and in the intestines in so many cases. They offered a possible explanation of the bleeding which sometimes occurred from the vagina of females and the rectum of male children within a few days of birth. This phenomenon, especially in female children, was not uncommon, and numerous hypotheses

had been advanced to account for it, none of which were supported by anatomical evidence. This subject had been very fully dealt with in a paper by Dr. Cullingworth in the 'Liverpool and Manchester Medical and Surgical Reports,' vol. iv.

Mr. Alban Doran said that Dr. Dakin had rightly turned attention to the question as to what occurred when the child was not stillborn but survived. The hæmorrhages might not kill, but they might set up visceral and other diseases. Large subcutaneous extravasations of blood caused by violent blows were sometimes followed by the development of a sarcoma. Mr. Doran had observed a case of sarcoma following a blood-tumour which developed in the shoulder of a woman almost immediately after a blow. Malignant changes commenced a few months later. He knew of a very similar case where the shoulder was struck by the sash of a window. Possibly sarcoma in infancy might sometimes develop in the same manner in association with these hæmorrhages. Thus Dr. John Phillips's case of congenital sarcoma in a new-born infant ('Transactions,' vol. xxx, 1888, pp. 301, 334) might have arisen in an extravasation of blood due to congestion from some fœtal disease or injury.

Dr. Lewers suggested that some morbid condition of the vessels might have caused the hæmorrhage in some of the cases. Considering the fact that so many children that afterwards throve had been delivered by forceps, it seemed improbable that the forceps, skilfully used, would often cause visceral hæmorrhage in healthy fœtuses.

Dr. Herbert Spencer, in reply, thanked the Society for the manner in which his paper had been received. As regarded the use of the forceps, he did not think the question could be settled by an appeal to practice, if only for the reason that the frequency with which it was employed varied extremely with different practitioners. Neither could the matter be decided by statistics of stillbirth, it being well known that children with meningeal hæmorrhage often died of the injury some hours or days, or even weeks, after birth, or they might survive with subsequent paralysis. He thought that many slight muscular or mental disabilities in after life might have their origin in these injuries. Careful observation of the after-history of difficult forceps deliveries was very desirable; meanwhile he regarded the constant occurrence of meningeal hæmorrhage in the cases he had recorded as a significant fact which told against the frequent employment of the instrument. It would be seen, on referring to his paper, that, in at least some of the cases, the injury was due directly to the forceps, and not to the condition which called for its employment. Considering the injuries that the instrument was capable of inflicting on the child (to say nothing of the mother), he thought it should not be used without definite indications, either on the part of the mother or child. It was impossible to be sure, even in the

simple case supposed by Dr. Herman, that the forceps was absolutely harmless. He (Dr. Spencer) recommended the application of the forceps to the after-coming head (when it was in the pelvis and there was difficulty in extraction) as the most rapid and efficient method of saving the child from death by asphyxia; he had known it succeed in delivering the after-coming head of a second twin after traction had failed. The forceps, when applied to the after-coming head, was free from some of the dangers (such as pressure on the neck) which attended its employment to the fore-coming head, and by producing flexion it saved the sterno-mastoid muscles from injury. He could only explain Dr. Galabin's assertion, that sterno-mastoid tumour had not been seen by him after delivery of the after-coming head by traction, by supposing that it had not been specially looked for. From personal experience he could say that it was a common result of such traction, although wry-neck was sometimes slightly marked or even absent. He had seen cases similar to that described by Dr. Horrocks, and had found hæmorrhage around the medulla. He had expected in some of the cases of respiratory paralysis to find hæmorrhage into the medulla in the situation of the vaso-motor respiratory centre, but had not succeeded. On the other hand, he had found hæmorrhages scattered through the substance of the medulla in an anencephalic fœtus, which breathed for three quarters of an hour. He did not approve of the performance of tracheotomy in Dr. Horrock's case; he would have preferred to pass a catheter into the trachea. This he had done in upwards of fifty dead and in several stillborn fœtuses, and, although it was not often necessary, he considered it an easy and extremely valuable means of resuscitation. He thought that the majority of cases of jaundice in new-born children were due to changes in the colouring matter of extravasated blood, a view already propounded by Zweifel. The question of the after-history of children which survived these visceral hæmorrhages was, he thought, highly important. Several detailed observations on children which survived a few days would be found in the paper he had read; but he hoped that other observers, with greater opportunities, would multiply and extend them. In respect to Dr. Dakin's observations on jaundice, Dr. Spencer pointed out that the records in his paper were complete only as regarded congestion and hæmorrhage, and not as regarded icterus.

JULY 1st 1891.

J. Watt Black, M.D., President, in the chair.

Present :—34 Fellows and 2 Visitors.

Books were presented by Mr. R. W. Parker, the St. Thomas's Hospital Staff, and the University College Hospital Staff.

The following gentlemen were elected Fellows of the Society :—Edward Arthur Burgess, M.R.C.S. (Cricklewood) ; Lionel C. Everard Calthrop, L.R.C.P.Lond. ; William Ayton Gostling, M.D., B.S.Lond. (West Worthing) ; Alfred Maitland Gledden, L.R.C.P.Lond. (Crouch Hill) ; and Alfred Edgar Wayner, M.D.Montreal (Kingston, Jamaica).

The following gentlemen were proposed for election.—Herbert Markant Page, M.D.Brux. (Redditch) ; and Henry Sharland Pope, M.B., B.C.Cantab.

MICROSCOPIC SPECIMENS OF CERVIX UTERI REMOVED BY SUPRA-VAGINAL AMPUTATION FOR CANCER.

By A. H. N. Lewers, M.D.

Dr. Lewers exhibited microscopic sections showing squamous epithelioma of the cervix. More than three years had elapsed since the operation, and there had

been no recurrence. He also exhibited sections showing columnar epithelioma. The cervix had been removed one year and eleven months ago, when the patient was three months pregnant. She miscarried two days afterwards. No recurrence had taken place.

Both patients were examined during the week on which these specimens were exhibited.

A MYLACEPHALOUS ACARDIAC TWIN.

By H. Page, M.D., D.P.H.(Camb.), Redditch. (Introduced by Herbert Spencer, M.D.)

On August 15th, 1890, I was called to Mrs. A—, aged 35 years, in her tenth labour at full term. All her previous labours were normal and single births at term. There was no history of syphilis. Just before I arrived a living male child, whose presentation was normal, was born; the child was normal in all respects, and is now living and healthy. His length was 48·5 cm., weight 3·1762 kilos. Having divided the funis, I placed my hand over the uterus to assist the expulsion of the placenta, when I found it still of considerable size and, suspecting twin pregnancy, proceeded to make examination *per vaginam*. On doing so, I detected a second fœtus with cephalic presentation; at the moment I was unable to satisfy myself of its exact nature. Whilst continuing the examination, for the purpose of accurately diagnosing the presentation, the "pains" returned, and as there was no obstruction, and I found that the fœtus advanced rapidly, I awaited its birth, which occurred with the "third pain." Seeing immediately that it was a monster, I suppressed the natural emotion of the two women who were present. After the normal pause, the placenta was expelled. The

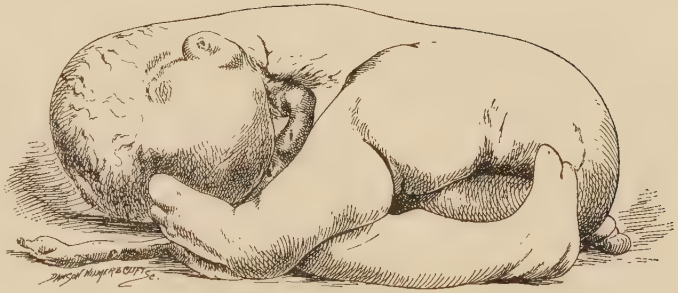


FIG. 1.—Anterior view.

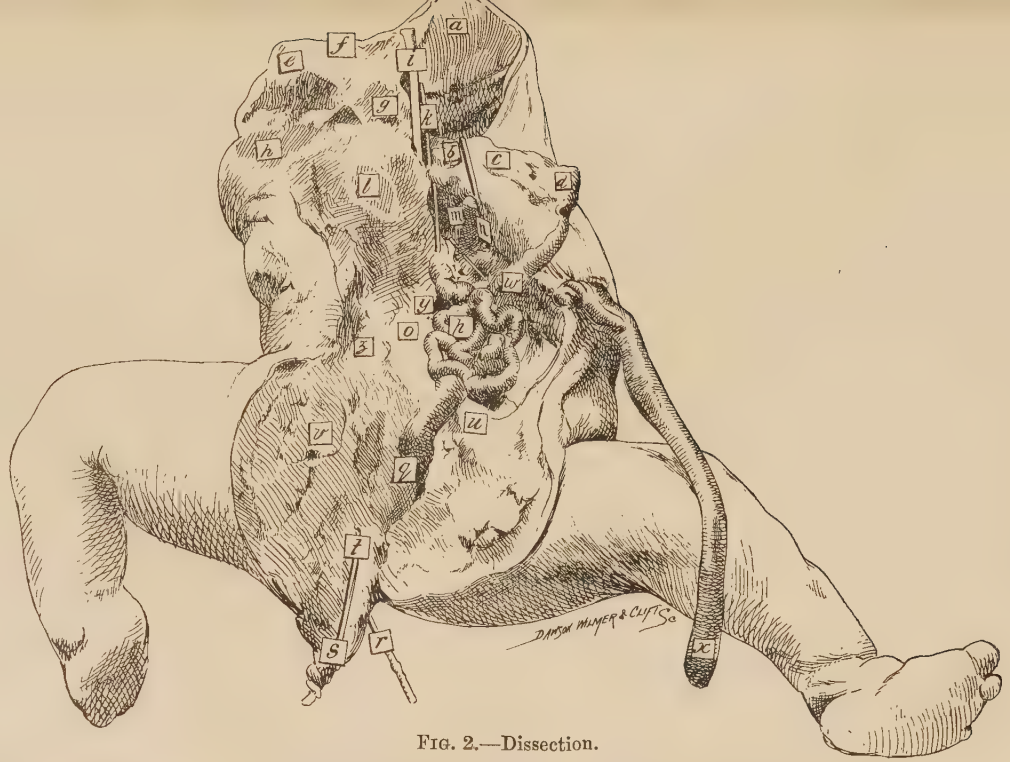


FIG. 2.—Dissection.

a. Cephalic cavity (circ. 29 cm., contents 55 cc.; alk. react., sp. gr. 1027, alb. 4·3 %, cl 3·8 %).
b. Termination of spinal cord.
c. Palate process of superior maxilla.
d. Nose.
e. Nose (sect. of right half).
f. Palpebral fissure (rudimentary).
g. Fifth cervical vertebra.
h. Cephalic cavity (right portion).
i. Spinal canal (probe in).
k. Inferior vena cava (probe in).
l. Stomach (section of right adherent portion).
m. Stomach.
n. Heart (probe passed into descending aorta).
o. Commencement of large intestine.
p. Small intestines.
q. Rectum and large intestine.
r. Anus (probe passed into).
s. Penis (urethra laid open, probe passed in bladder).
t. Bladder.
u, v. Sections of symphysis pubis.
w. Vein and artery of funis anastomosing with abd. aorta and inf. vena cava.
x. Funis (external portion).
y. Inferior vena cava.
z. Kidney and supra-renal body.

monster being, as far as I can ascertain, unique in several respects, I venture to put these notes on record.

External examination.—Length in the flexed position in which it was born, 29 cm. Length when extended, 37 cm. Weight, 1·3012 kilos. Cephalic extremity consisted throughout of a soft globular mass 29 cm. in circumference, rigidly fixed in the right line with the trunk. There was no trace of a mouth; the only noticeable projection was a small conical protuberance 1 cm. long, 3·5 cm. to the fœtal left of the median line, in position and outline suggesting an ear. On minute examination, to the left of the median line a slight fissure 3 mm. long was discovered, 2 cm. above this protuberance "the ear," suggesting a rudimentary palpebral fissure: there was no corresponding fissure on the opposite side of the head. Three cm. above this fissure was a small circular foramen 6 mm. diameter, occluded by a semi-transparent membrane, suggesting a rudimentary membrana tympani; at a fairly corresponding point, on the opposite side of the head, there was a similar but far less well-marked structure 4 mm. diameter. *Trunk* measured 12 cm. long; there are no traces of upper extremities (including clavicles, scapulæ, &c.). *Vertebræ.*—Only those below fifth cervical were present. There was a distinct angular dorsal curvature, with slight lateral deviation to the right of the median line; the concavity of the cervical curve was forward. *Thoraæ* is 26·5 cm. circumference; there were twelve ribs on either side; their articulations with the sternum were normal except the fifth and sixth on left side, where the sternal ends were free. *Abdomen* presented no marked abnormalities externally, except that the umbilicus was only faintly indicated by an ill-marked circular fissure. *Penis* was situated 5 mm. to right of the median line of the perinæum, and was 6 cm. below the symphysis pubis, near the coccyx; the organ itself was fairly formed, 1 cm. long, but had a slight, full fold of skin connecting its dorsum with the abdominal (perinæal) integument, suggestive of an inverted scrotum; no scrotum proper was

present. *Anus* was displaced considerably backwards, 1·5 cm. below the termination of coccyx and 8 mm. from the posterior median line; it was distinctly oval in form; its long axis measured 5 mm. *Lower extremities.*—Both measured 16 cm. long, and were slightly but rigidly flexed backward; the feet both presented talipes calcaneo-varus. The *right foot* had two toes (great toe and probably the second); well-formed nails were present on these toes; both were considerably larger than normal. The *left foot* had four toes—great toe, second, and fifth, and between these last there was a rudimentary toe, perhaps the third; no nails were found on this foot. *Funis.*—Next to the aprosopous (faceless) condition of the monster, the most remarkable feature was the site of the fœtal *insertion of the funis.* This was apparently in the left supra-clavicular space, immediately at what would seem the sterno-clavicular articulation—the root of the left neck. The point really was the lower end of the left border of the gladiolus sterni, 1 cm. from the middle line of the sternum in the space where the fifth and sixth ribs (left) ought to unite with sternum, but which were here free as above noted. This insertion of the funis was 5 cm. above the symphysis pubis; the total length of the funis 25 cm., and 15 mm. diameter; it had no convolutions. It ruptured in the act of birth 15 cm. from fœtus; it did not encircle the monster in any part. *Placenta* was single, ovoid in form, and was expelled in the normal manner a few minutes after the birth of the monster. It measured 67 cm. circumference, 20 cm. in shorter diameter, averaged 2·5 cm. thick. It presented *two distinct amniotic cavities* corresponding fairly to the relative sizes of the fœtuses. The line of duplication for the monster was 8 cm. from the circumference. The placental implantation of the funis of the normal fœtus was 1 cm. from the centre; the length of this funis was 52 cm., circumference 30 mm.; it is normal in all respects. The funis of the monster had half the dimensions of the cord of the normal fœtus, and had no convolutions of its vessels. The vessels were one artery

and one vein of normal relative proportions. The placental distribution of the vessels of the normal funis was normal. The funis of the monster, closely adherent, traversed the semidiameter of the placenta; its two vessels anastomosed directly with one of the arteries and the vein of the normal funis, at the point of its penetration into the substance of the placenta.

Internal examination—anatomy.—The cephalic extremity contained 55 c.c. of dark straw-coloured liquid, sp. gr. 1027, reaction faintly alkaline, serum-albumen 4·3 per cent., chlorine 0·38 per cent. The only portion of bone present in the skull was apparently the palatine process of the superior maxilla, and of this only a part. Immediately posterior to this was an ovoid cavity 20 mm. by 15 mm., and 6 mm. deep, probably an expansion of the spinal foramen of the fifth cervical vertebra; there was a considerable thickening of bone on either side of this cavity; in it the spinal cord terminated abruptly. There was no trace of brain-substance within the head. The apparent "ear" turned out to be a rudimentary nose 1 cm. long, with fissure 3 mm. deep. There were no traces of teeth, orbits, or internal ears, though externally there appeared to be rudimentary membranæ tympani on either side of the head. The *spinal canal* terminated with the fifth cervical vertebra, in the cavity above described. There was asymmetry in all these parts described, about two thirds of each section being on the left side of the median line. The spinal cord was present in its canal. *Thorax.*—There was no trace of pleuræ or lungs, no diaphragm; the thorax and abdomen formed a common cavity. The only organ in the thorax was the *heart,* which was rudimentary and single-chambered. It was ovoid in form, and measured 20 mm. × 15 mm. posteriorly; to right of its median line it was adherent to the thoracic parietes. There was a slight duplication of the endocardium towards the apex, but nothing suggestive of cardiac valves; the only vessels present (both towards the apex, on the right of the heart) were an archless aorta and an inferior vena cava; posteriorly to

the heart, the aorta at once branched off to the head by a single vessel, and inferiorly formed the abdominal aorta. Immediately below the heart was the *stomach;* it measured 20 mm. × 10 mm., and was rugose. There was no true duodenum, the stomach opening directly into the *small intestine,* which formed a small convoluted mass, wholly on the left of the vertebral column, immediately beneath the stomach. The length of the small intestine was 32 cm., circumference 13 mm. Directly continuous with the small intestine was the *large intestine,* without valve or flexions; it coursed in nearly a straight line to the anus, just above which it crossed the lower sacral vertebræ. Its length was only 7 cm.; its circumference at the junction of the small intestine 20 cm., at the anus 3 cm. No trace of *liver, spleen, pancreas,* or *omentum.* The right *kidney* (the only one which could be found) was very minute, measuring 3 mm. × 4 mm.; its supra-renal capsule nearly circular, 3 mm. in diameter. *Bladder* measures 2 cm. × 1·5 cm. No *testicles* were present.

On the birth of this monster, one of the women present exclaimed, "It's a pig!" and intimated she knew all about it. Certainly there was a superficial resemblance, as it first appeared at birth, to the form sometimes given the carcases of little sucking pigs observed on butchers' stalls. Knowing the readiness of uneducated midwives to satisfactorily account to themselves for teratological problems of all sorts through material impression, I asked her what she meant. Straightway she observed it was quite clear how it came about; Mrs. A— had on several occasions, when about three months advanced in pregnancy, in crossing the yard at the rear of the house during twilight, suddenly and unexpectedly come upon the carcases of recently killed pigs which a neighbouring butcher had placed under the pump to wash. These circumstances at the time called forth some slight remarks from Mrs. A—, but not subsequently, nor did she dwell upon them mentally. Mrs. A— is still ignorant of the actual results of her labour.

Remarks.—Age of monster.—Probably, if not quite, at full term (ninth month). The centre of ossification in the lower epiphysis of the femur was present although indistinctly marked. The length and weight of the fœtus, relative to its being a twin and a monster; the absence at birth of signs of recent death; the absence of all traces of intra-uterine maceration; and the presence of well-formed nails in one foot, all support this view.

Sex of the twins.—The age of the husband was thirty-nine; he is quite healthy. The family (exclusive of these twins) consisted of six males and three females; their ages ranged from eighteen to two years; the sexes occurred in this order—M, F, M, M, M, F, F, M, M; then followed these twins, MM. The determining causes of sex depend, it is known, on numerous important factors. Summing up the total functions of the parental organisms as Nutrition (physiological) and Reproduction, and their combined tendencies on the side of the female to anabolism, and on that of the male to katabolism, we can trace their operation to some extent in this case. We have the ages, the preponderating influence of the parental environment, the number of pregnancies, all tending towards anabolism (confirmed by the excess of male progeny) as far as nutrition is concerned; whilst, with regard to the reproductive function, there can be little doubt that katabolic conditions predominate, hence the tendency to maleness in the offspring. Adopting the teaching of Weismann and Geddes, and following some of the known sex-determining factors, the sex (M.) in this case conforms to the induction therefrom, considered physiologically. On teratological grounds it conforms to the induction, in as far as the sex of *both* fœtuses is the *same* (MM.), though taking the sex-average of such rare cases, according to Tarnier, we should have expected both to be female. It is not apparent, however, whether Tarnier's sex induction in these rare monsters is based upon single or double (twin) monsters of this order, much less is any case noted of one monster and one normal fœtus at the same birth.

The statistical fallacy of the necessarily small average of such rare cases must be remembered. Whether the unnoted combination of factors present in this case would yield a male average, I have no evidence at my disposal to show. Another interesting question is—Was the case one of physiologically or "true" twins, or one of "common" twins? The signs of the probable age of the monster, and the sex of both fœtuses being the same, strongly point to the case being one of "true" twins.

Classification.—Adopting the classification of that great authority on human teratology, Is. St. Hilaire, this monster belonged to *Class* I, Single Monsters; *Order* II, Omphalosites; *Genus* Acephalus; *Species* Mylacephalus.

In many details it corresponded with the description given by S. Tarnier in his 'Traité de l'Art des Accouchements,' in others not. Clearly it belonged to the order Omphalosites, being wholly dependent for nutrition on the placenta, and being incapable of extra-uterine life. It agreed with the recognised conditions of Omphalosites, in being associated with twin pregnancy, and in being accompanied by a normal fœtus, and that of the same sex; also in the possession of an imperfect head, the absence of most of the important thoracic and abdominal organs, and in the marked internal asymmetry; further, in its rudimentary heart, and in sharing a placenta in common with its companion (Meckel and Caseux), and the funis having two vessels only. It approached the recognised conditions of Acardiacus Paracephalus in that its head was something more than "rudimentary," since traces of one of the cranial bones were present. On the other hand, it differed from Acardiacus Paracephalus in the absence of columnæ carneæ. It must, therefore, be classified as Acardiacus Mylacephalus. It differed, however, from the so-called "typical" form of this variety of acardiacs, in the absence of excessive liquor amnii, of cystic cavities, and of œdema of the connective tissue. The absence of these conditions, the presence of bone in the skull, the external symmetry, and the grade of deve-

lopment of this acardiac, seemed to indicate a relatively high degree of varietal development, in obedience to the laws of mutability, and progressive evolution of species. Tarnier observes that these monsters are "very rare."*

Theory of Omphalosites.—The theory of causation of this variety of monsters is that the rudimentary heart and circulation of the Omphalosite forms a sort of diverticulum to the circulation of the normal fœtus, and that little by little the development of the normal fœtus impedes that of the Omphalosite. The degree of development depends largely upon the condition of the circulation of the acardiac, as determined by the relative implantation of the funis of each fœtus. This theory, although mechanically accounting for the arrest of development of the Omphalosite, does not explain the direct physiological cause and sequence of the perversion of development itself. From the mode of the placental insertion of the funis, fairly symmetrical development of the monster might have been expected, whereas the upper extremities were absent, and asymmetry was very marked. By the law of successive development, the evolution of the upper extremities precedes that of the lower; so the inversion of the circulation of the Omphalosite must, by the inversion of the degree of nutrition, have sufficed to avert the order of development also. It is difficult, by the mechanical explanation, to understand the comparative symmetry of the external parts, with the marked absence and asymmetry of internal organs.

Dr. Page exhibited a series of photographs of the monster, which he presented to the Society's Library. The specimen will be presented to the museum of Queen's College, Birmingham.

* Since writing the above paper, through the kindness of the Honorary Secretary, Mr. Alban Doran, I learn that he contributed the description of a case of Acardiacus Mylacephalus to the 'Transactions' of the Society, 1889. From this monograph it appears there are thirteen specimens of acardiacs (human) in the London museums, and one at Edinburgh. Of these only two (one the subject of the monograph, the other No. 241-2, Teratological Series, Royal Coll. Surgeons, Lond.) are of the variety Mylacephalus.

Mr. Alban Doran maintained that Dr. Page's monster was an Acardiacus Paracephalus, where a rudimentary heart was often found. A specimen of this variety was preserved in St. George's Hospital Museum. Mr. Doran had made a sketch of the specimen; it was published in his "Notes on Acardiac Monsters in the Museums of London Hospitals" ('Transactions,' vol. xxxi, 1889, p. 4). Acardiacs were always developed in one-yelk twin pregnancies, and hence were of the same sex as the normal twin, exceptions (Dr. Dickinson's case, loc. cit., p. 23) being doubtful. The manner in which acardiacs were evolved was well known. Mr. Doran had explained Ahlfeld's theory in the communication just quoted.

FIVE MORE CASES OF PUERPERAL ECLAMPSIA, ESPECIALLY ILLUSTRATING THE TEMPERATURE AND URINE IN THIS DISEASE.

By G. Ernest Herman, M.B.Lond., F.R.C.P.,

OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL; PHYSICIAN TO THE GENERAL LYING-IN HOSPITAL.

(Received January 12th, 1891.)

(*Abstract.*)

Five cases are detailed, of which the chief features are as follows:

Case 1.—Fits and premature delivery in first pregnancy; symptoms three weeks, and injury producing unconsciousness three days, before end of third pregnancy; spontaneous premature delivery of living child; fits beginning an hour after delivery; five fits; urine albuminous after first fits; nearly solid with albumen after last; diminished percentage of urea during fits, and probable diminution of the quantity of urine; rapid decrease of albuminuria and increase of urea percentage after cessation of fits, and, later on, slight diuresis; persistence of slight albuminuria for a month after delivery; subsequent cessation of albuminuria.

Case 2.—First pregnancy; premonitory symptoms a week before fits; fits coming on in middle of eighth month of pregnancy; spontaneous premature labour; twins, both living; eleven fits in all, the last three-quarters of an hour after delivery; no retinal changes; sudden dyspnœa after last fit; steadily increasing dyspnœa, and death by asthenia forty-seven hours after delivery. Irregular pyrexia throughout; diminution

in quantity of urine and urea during fits; increase of albuminuria and further diminution of urea percentage during the six hours following delivery; then decrease of albuminuria and increase of urea percentage.

Case 3.—Ninth pregnancy; premonitory symptoms three weeks, fits beginning fourteen hours before delivery; eight fits in nine hours; slight pyrexia; cessation of fits and fall of temperature after morphia and before delivery; intra-uterine death of child and premature delivery; urine solid with serum-albumen; diminution of albuminuria following delivery; after delivery continuous rise of temperature, and death by coma ten hours after delivery; diminished quantity of urine throughout; steadily increasing diminution of percentage of urea throughout.

Case 4.—Second pregnancy; premonitory symptoms two days before fits; fits coming on about end of seventh month; spontaneous premature delivery of living child three days after commencement of fits, and four hours after last fit; fits almost continuous for ten hours before admission, ceasing after morphia and chloroform; no retinitis; slight pyrexia before delivery; steadily increasing dyspnœa and rising temperature ending in death fifty-two hours after delivery; urine solid with albumen before delivery; some diminution in albuminuria after delivery; no diminution of urea percentage; diminished quantity of urine and urea before delivery, rising, but not to normal amount, after delivery; acute degenerative changes in renal cortices; pulmonary and cerebral hæmorrhages.

Case 5.—Third pregnancy; fits beginning in first stage of labour; forceps delivery; child living; six fits before delivery, within period of three and a quarter hours, the last half an hour before delivery; then four and a half hours without fits; then five more fits within period of nine and a half hours; no retinitis; great and sudden fluctuations of temperature, not showing any relation to fits; urine before delivery solid with albumen (very little paraglobulin); diminution of albumen after delivery; more rapid diminution after cessation of fits; no casts; slightly diminished quantity of urine and percentage of urea during second set of fits; slight diuresis and increased urea

excretion during lying-in; deficient memory for at least a week after fits; recovery.

The author recapitulates the following facts, seen on comparing these cases with one another, and with those published by him in vols. xxix and xxxii of the Transactions, in all twelve cases:

1. Four children out of ten died *in utero*.

2. The cases show no direct effect of the fits on the temperature.

3. In all the cases observed at the beginning of the disease, except two, the quantity of urine was lessened. Of the two exceptions, one died, and in the other renal disease persisted after childbed.

4. In all, the excretion of nitrogenous matter in the urine was absolutely diminished, and in most the percentage was diminished.

5. In all, the urine was at one time nearly or quite solid with albumen. In three of the cases the fits appeared to increase the amount of albumen. In the two cases in which the albuminous precipitate contained the largest proportion of paraglobulin both recovered. Of three in which the amount of paraglobulin was less than in the rest, two died, and in one renal disease persisted.

6. In all that recovered, there was rapid increase in the amount of urine and the quantity of nitrogenous matter contained in it, and diminution in the amount of albumen. This restoration did not, as a rule, take place till some hours after the cessation of the fits, and went on more rapidly after delivery in the cases in which cessation of fits preceded delivery. This restoration of renal function did not take place in the cases which died.

7. Retinitis was only present in two cases, both of which died.

In the 'Transactions' of this Society for 1887 and 1890, two papers by me are published; and in these seven cases of puerperal eclampsia are reported, in which the course of the temperature and the variations in the urine were observed with especial care. I now report five more such cases.

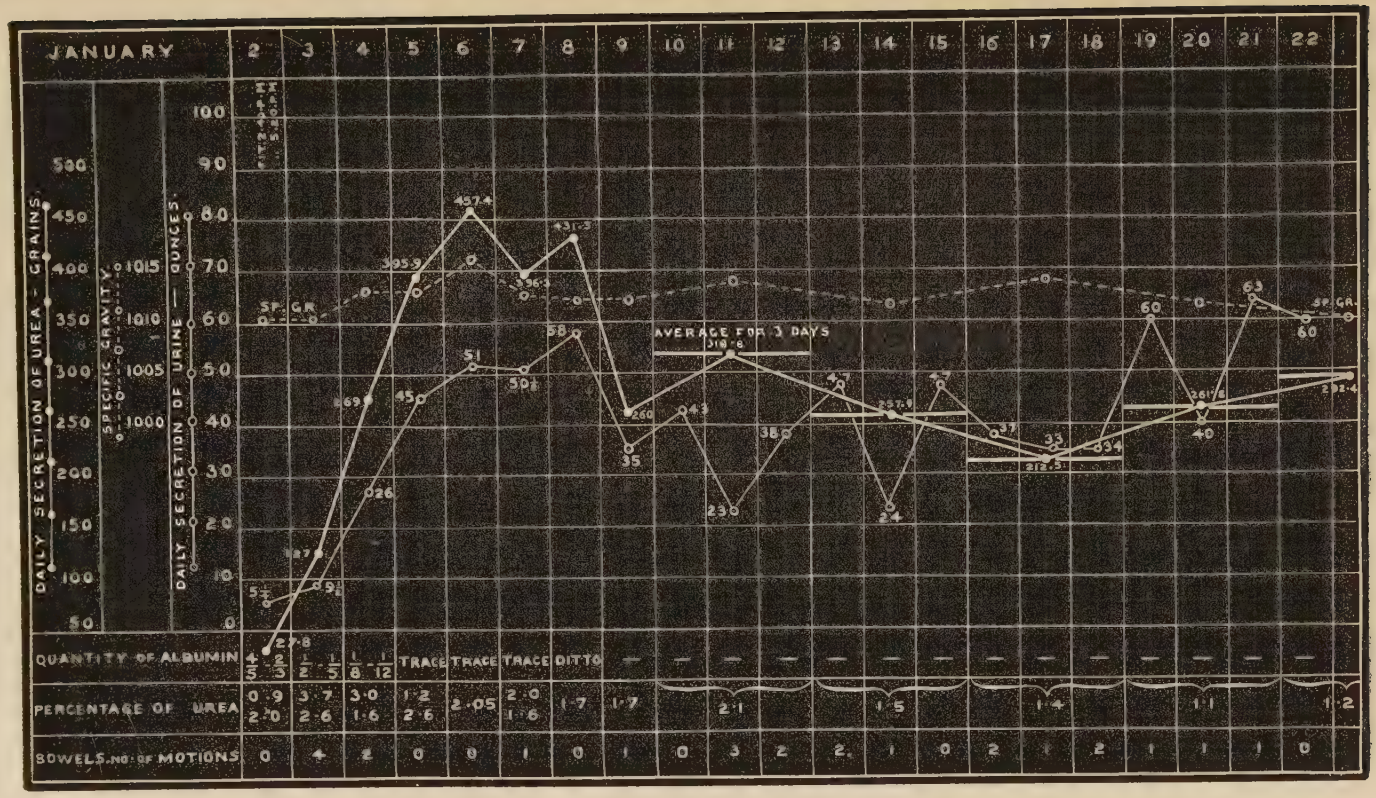
Case 1.—*Fits and premature delivery in first pregnancy; symptoms three weeks, and injury producing unconsciousness three days before end of third pregnancy; spontaneous premature delivery of living child; fits beginning an hour after delivery; five fits; urine albuminous after first fits; nearly solid with albumen after last; diminished percentage of urea during fits, and probable diminution of quantity of urine; rapid decrease of albuminuria and increase of urea percentage after cessation of fits, and later on, slight diuresis; persistence of slight albuminuria for a month after delivery; subsequent cessation of albuminuria.*

M. A—, aged 29, admitted into the London Hospital January 2nd, 1890. (Reported by Dr. Hugh Smith, Resident Accoucheur, and Mr. John Wells, Clinical Clerk.)

Family history.—A younger sister has been subject to fits ever since quite young, which, it is said, have made her cross-eyed.

Previous history.—Patient had a fit after a fright when aged eleven. Has also had "gastric fever." She had fits in her first pregnancy, and the labour came on prematurely. The second child was born at term, and is now living. Throughout her third pregnancy she suffered much from headache. The third child was born on January 18th, 1890. For three weeks before this confinement she had suffered from frequent vomiting, also from a constant shooting pain in the temples, worse on walking or putting her head down, and from giddiness. On December 29th she had a fall, and was stunned; she came to herself, and went to bed, and from that time could remember nothing until she found herself in the hospital. She had not noticed anything unusual about the urine.

She was attended in her confinement (January 1st) by a student of the hospital. When he arrived the child and placenta had been expelled, the membranes had been ruptured, but the child was enveloped in them. The child was premature, but living. Before delivery the patient had not had any fits. The first one occurred


JANUARY
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
DAILY SECRETION OF UREA — GRAINS.
SPECIFIC GRAVITY.
DAILY SECRETION OF URINE — OUNCES.
SP. GR.
AVERAGE FOR 3 DAYS
QUANTITY OF ALBUMIN
PERCENTAGE OF UREA
BOWELS. NO. OF MOTIONS
TRACE
DITTO

Case 1—Chart 1.

about an hour after delivery, while the student was present. There was no cry. Dr. Hugh Smith was summoned, and on arrival found the patient in a second epileptiform seizure. He examined the urine, and found that it contained one-third albumen. She was taken to the hospital, and admitted at about 1 p.m.

On admission patient was unconscious, with occasional convulsive movements. Slight œdema of lower extremities, none of face. Pulse 112, not of high tension; respirations 29. Ankle-clonus and exaggerated knee-jerks.

At 2.40 p.m. patient had a third epileptiform seizure, at 5.20 p.m. a fourth, and at 5.40 p.m. a fifth.

January 3rd.—Respirations 24, pulse 84. Bowels freely open in consequence of a minim of croton oil. Patient is very restless, answers questions slowly but rationally, and asks for food, &c. Tongue swollen, covered with white, moist fur; breath offensive. Heart's impulse slightly exaggerated, first sound prolonged and second sound accentuated; arteries rather hard, and pulse full and of slightly higher tension than normal. Coarse râles over lungs. Nothing abnormal on abdominal examination. Knee-jerks exaggerated on both sides; ankle-clonus less than yesterday. Hyperæmia of both retinæ, but no hæmorrhages, white patches, or signs of exudation. No headache; no tenderness over kidneys.

5th.—Pulse soft, tension not increased. Patient has no headache, and is quite rational. Œdema of legs less, knee-jerks still exaggerated, and a few strokes of ankle-clonus can be obtained. Fauces congested, and ulceration on anterior pillar of fauces on right side. Tongue swollen from being bitten during fits.

6th.—Slept six hours and a half last night. Has perspired freely. Complains of shooting pains over head. Cough slight.

7th.—Slept nearly all night. Breasts were full and have been relieved by pump.

9th.—Breathing accelerated, cough troublesome, expectoration thick and streaked with blood.

11th.—Large moist râles over bases of both lungs. No œdema. Lochia slight and watery. Optic discs still hyperæmic. Sleeps well. No delirium, vomiting, diarrhœa, or headache. Takes food well. Knee-jerks still glib on both sides; a few doubtful strokes of ankle-clonus.

14th.—Did not sleep well last night. Complains of very bad vertical headache. No twitching, nor any sign of a fit.

16th.—Hyperæmia of discs has subsided. No ankle-clonus. Knee-jerks still glib.

20th.—Vomiting and a little delirium last night.

25th.—Last night her friends informed her of the death of a sister. This upset her, and she did not sleep well. To-day complains of frontal headache, and there are some muscular twitchings.

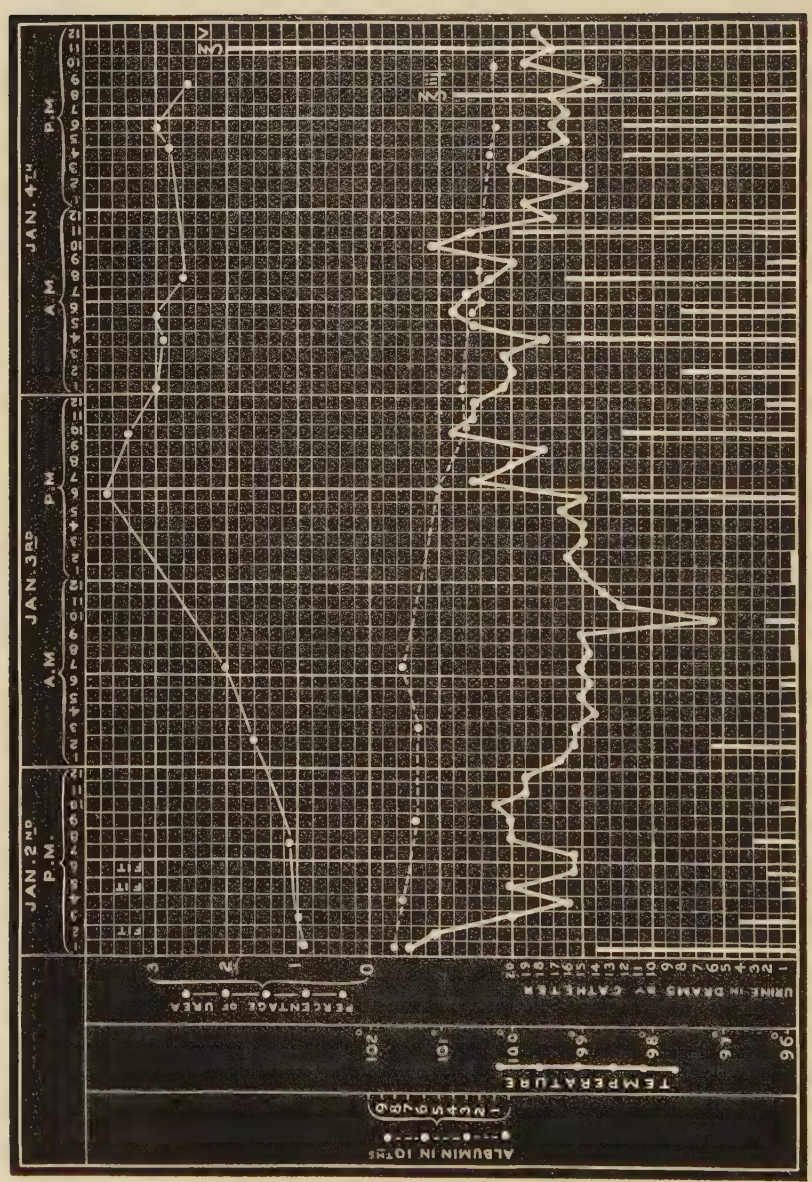
27th.—Complains of backache. Is fretful and low-spirited, possibly from causes mentioned in last note.

February 3rd.—Yesterday had three seizures resembling fits, preceded for half an hour by pain in the præcordial region. In the opinion of the Resident Accoucheur, who saw one of them, these fits were hysterical; there was no loss of consciousness either during or after the attacks.

9th.—Discharged.

Temperature.—The temperature on admission was 101·4°. In four hours it had fallen to 99°. The fit which she had two hours and a half after admission was not followed by a rise, but by a fall in temperature; and the two fits which closely followed one another about four hours after admission were only followed by a rise to 100°. On the morning of the third day the temperature again rose to 101°, but there was no marked alteration to account for this rise. After this date the temperature did not exceed 99·5°.

Urine.—Quantity.—The catheter was passed every two hours, to try and get all the urine which was secreted; but the bed was found during the first two days constantly wet, so that the urine which was secured does not represent all that was poured into the bladder. For the first twenty-nine hours after delivery very little or no urine



CASE 1—CHART 2.

was found in the bladder when the catheter was passed. After this the quantity of urine found each time in the bladder rapidly increased. This apparent increase in the amount of urine may therefore have been partly or wholly due to lessened irritability of bladder. But after the first two days the amount of urine continued to increase, reaching its height on the fifth day, when 51 oz. were passed. After this the quantity remained somewhere near the normal standard, the figures below normal being accounted for by loss during the action of the bowels. Even making allowance for error due to irritability of bladder, I think we may correctly conclude that the amount of urine was diminished during the stress of the disease.

Specific gravity.—This was throughout rather below normal. It was from 1010 to 1016. I have no record of the hourly variations. The first specific gravity taken was that of all the urine of the first day mixed together. It was 1010.

Albumen.—The urine drawn off after admission contained four-fifths of its bulk of albumen. The quantity of albumen became less each day, and on the fourth day had sunk to a trace. A trace of albumen was present throughout the patient's stay in hospital. During the first three days the paraglobulin was separated from the serum-albumen. In the urine drawn off on admission, the proportion of paraglobulin to serum-albumen, judged by the eye, was as two to three. In subsequent testings it was found that while the quantities of both kinds of albumen diminished, the paraglobulin diminished rather faster that the serum-albumen.

The description just given applies to the urine withdrawn while the patient was in the hospital. But the urine drawn off before admission, after the second fit, only contained one third albumen; a fact which, with similar observations made in other cases ('Obst. Trans.,' vol. xxxii, pp. 18, and 30), goes to show that the quantity of albumen may be increased by the fits.

Urea.—The percentage of urea was diminished on admission to ·9 per cent., and it steadily rose, each estimate during the twenty-nine hours following admission, showing an increase in the percentage of urea. After this time the quantity of urine began to increase, and the percentage of urea slightly lessened; but it never sank to so low a percentage as during the fits. During the rest of the patient's stay in the hospital, the percentage of urea was as high as or higher than would have been expected from the specific gravity of the urine. The total quantity of urea excreted shown on the chart is, from the unavoidably imperfect collection of the urine during the first two days, below the real quantity. The chart shows a steady increase in the amount of urea, reaching its height on the fifth day. During the four days following this the daily amount of urea eliminated diminished; and during the rest of the patient's stay in the hospital it was rather below what is usually considered the normal amount. As some of the urine was on most days lost during defæcation, some allowance must be made for this. Error of this kind does not affect the percentage of urea. A glance at the chart shows that the amount of urea increased more than the amount of urine. I think it is probably correct that the quantity of urea was diminished during and for twenty-four hours after the fits, although not to so great an extent as the chart shows.

Sugar.—On the day following admission a considerable quantity of sugar was present in the urine. On subsequent days the amount of sugar steadily decreased; but the urine was not found entirely free from sugar until the thirteenth day. It was taken to be galactosuria, from reabsorption of sugar from the milk.

Reaction was acid throughout.

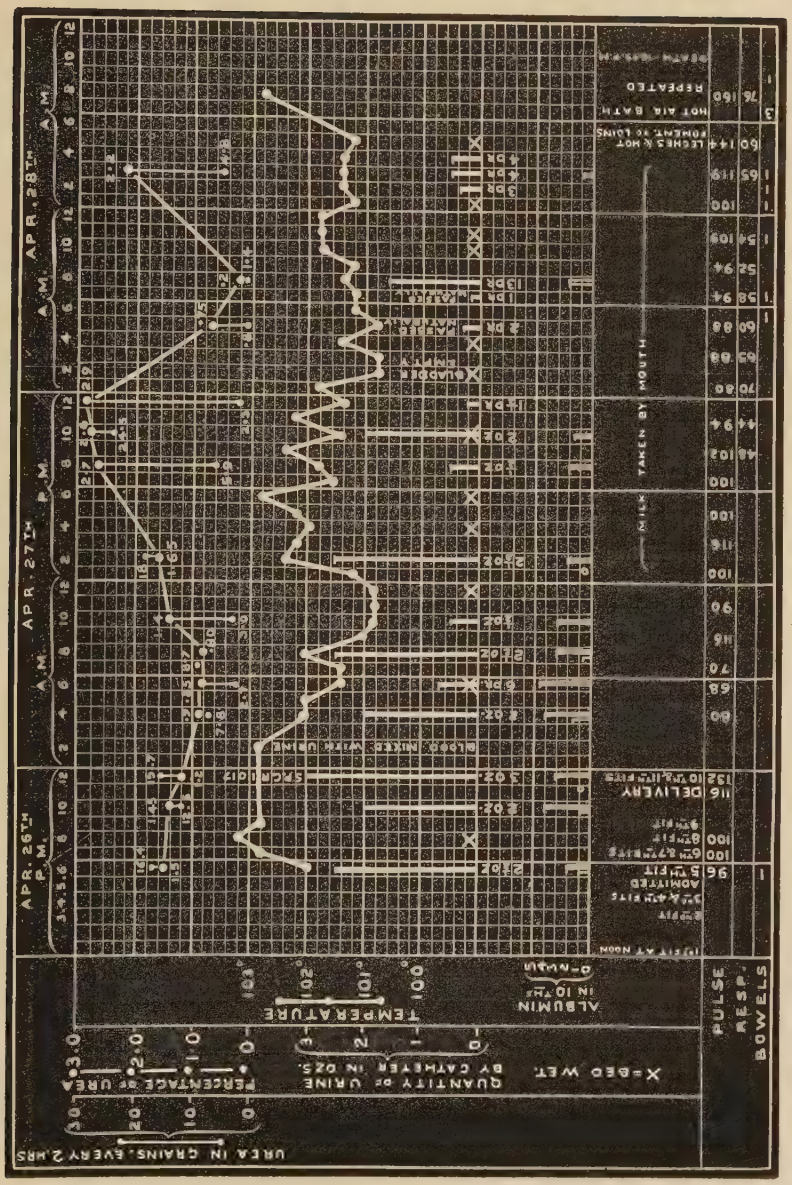
June 24th, 1890.—Patient says that she is quite well, except for headaches, which are rather worse than before the fits. They are referred to the vertex. She has a poor appetite, and sleeps badly; her head seems to wander. She is not anæmic. Looks well. Urine free from albumen.

Case 2.—*Primigravida ; premonitory symptoms a week before fits ; fits coming on in middle of eighth month of pregnancy ; spontaneous premature labour ; twins, both living ; eleven fits in all, the last three quarters of an hour after delivery ; no retinal changes ; sudden dyspnœa after last fit ; steadily increasing dyspnœa, and death by asthenia forty-seven hours after delivery ; irregular pyrexia throughout ; urine containing much albumen ; diminution in quantity of urine and urea during fits ; increase of albuminuria and further diminution of urea percentage during the six hours following delivery ; then increase in albuminuria, and increase of urea percentage.*—K. S—, aged 20, admitted into the London Hospital, April 26th, 1890. (Reported by Dr. A. B. Roxburgh, Resident Accoucheur.) Patient was pregnant for the first time, and thought herself about seven and a half months gone. She had never been known to suffer from fits before. She had been complaining of pain in the head for a week, and had vomited several times. On April 25th she was about as usual, doing her ordinary house work, and did not look ill. She was a little worried over her approaching confinement, but her pain in the head was less severe. On the evening of the 25th, the head pain was worse than it had ever been before. On the morning of April 26th, she took some castor oil, and the bowels acted. At 12.45 p.m. of this day, while lying in bed, she had a fit. She was seen at her home at 3 p.m. She was then tossing about in bed, having a dazed appearance ; vaginal examination produced struggling and resistance ; breathing was laboured. The os uteri was about the size of a threepenny piece. At 3.40 p.m. she had a second fit, epileptiform in character, pupils dilated, head and eyes turned to right. Half an hour after this fit, patient had not recovered consciousness. Pulse immediately after fit was 80 ; half an hour after 90. Patient was ordered to be taken to the hospital. On her way to the hospital, at 5.15 p.m., a third fit occurred.

At 5.30 p.m. she was admitted. She was still uncon-

scious. Shortly after admission the bowels acted. At 5.40 p.m., a fourth fit, epileptiform in character. Pulse after the fit 96. At 6.5 p.m., convulsive twitchings lasting four minutes. The bowels were cleared out with an enema of sulphate of magnesia, and then an enema containing Pot. Bromid. ʒss, Chloral Hyd. ʒss, was given, and retained. 6.45 p.m., a fifth fit. 7.20 p.m., a sixth fit. 7.40 p.m., a seventh fit, preceded by great restlessness. No vomiting; no cry. Head and face turned to left in fit. Immediately after the fit the knee-jerk was greatly exaggerated on both sides, and ankle clonus readily obtained on both sides; no œdema of face or hands. Patient has been unconscious between the fits since admission. Respirations after the fit 37 per minute. 7.48 p.m., twitchings of arms and shoulders, not of legs, on both sides. 8 p.m., an eighth fit; urine passed in bed. After the fit patient very restless. 8.5 p.m., chloroform inhalations begun; uterine pains frequent. 8.30 p.m., morphia gr. ¼ given. Dilatation of os uteri with Barnes's bags begun. 9 p.m., chloroform discontinued. 10 p.m., a ninth fit; pupils dilated; divergent strabismus. Ophthalmoscopic examination made; nothing abnormal seen. No retinal hæmorrhages. Membranes ruptured. Vertex presenting, occiput behind and to right. Chloroform resumed. 11.45. p.m., child delivered with forceps. After its extraction another was found presenting with the breech. Both were small and premature; both born living.

April 27th.—12.3 a.m., placenta expressed, and ergotin gr. ij given hypodermically. 12.7 a.m., a tenth fit. Uterus relaxed at beginning of fit, strongly contracted at its close. A little hæmorrhage just before fit commenced. Fit lasted two minutes. 12.20 a.m., morphia gr. ⅓ given hypodermically. 12.24 a.m., eleventh fit, lasting two minutes. Tonic spasms for ten seconds, then clonic spasms lasting forty-five seconds, and then gradually getting weaker and weaker, the last twitchings being on the right side of the face and right hand. Breathing was interrupted for fifteen seconds. Then came a single


APR. 26TH P.M.
APR. 27TH P.M.
APR. 28TH A.M.
UREA IN GRAINS, EVERY 2 HRS
PERCENTAGE OF UREA
QUANTITY OF URINE BY CATHETER IN OZS.
X=BED WET.
TEMPERATURE
ALBUMIN IN 10THS
PULSE
RESP.
BOWELS
MILK TAKEN BY MOUTH
DELIVERY
HOT AIR BATH REPEATED

CASE 2.

respiration, followed by ten seconds without respiratory effort. Then regular, slow, and stertorous breathing commenced, after five minutes of which respiration suddenly became rapid, 36 per minute. Pulse 132. Knee-jerk exaggerated. Ankle clonus obtained on both sides. After this fit chloroform was given for a short time. Between 3 and 4 a.m., breathing was for a time more laboured.

11 a.m., no more fits. Patient more conscious and very restless. Cardiac impulse displaced slightly outwards. Systolic murmur heard at apex and conducted into axilla. Arteries not hard. Patient is anæmic. Slight œdema of legs, not of face. No abnormal appearances to ophthalmoscopic examination.

9 p.m., patient has slept nearly all day, but been restless at intervals. Much struggling is provoked by the passage of the catheter, and the administration of nutrient enemata. Patient can swallow, and since 2 p.m. has taken 26 oz. of milk.

28th.—11 a.m., patient has taken two pints of milk during night. No vomiting. Has been lying almost entirely on right side, and resists all efforts to put her on the left. Much urine passed into bed. Passage of catheter provokes struggles. Bowels open twice; large loose motions. Pulse 80—100. Respirations rapid, increasing from 40 at 10 p.m. last night to 60 or 70 early this morning. Now 52 per minute. Patient has coughed a little during the night; is quite rational, and recognised her sister this morning. Skin dry. Moist crepitation heard over bases of both lungs behind; rhonchi over larger tubes. Air seems to enter freely and equally into each lung, except at bases behind. Knee-jerk exaggerated on each side. No ankle clonus. 5 p.m., very restless all day. Pulse weaker, 120; respirations 60. Face and hands bluish. Lozenge containing $\frac{1}{10}$ gr. of nitro-glycerine given, and six leeches to loins followed by hot fomentation. 7 p.m., hot-air bath ordered, but the restlessness of the patient rendered it impossible to give it. 9.30 p.m., pilocarpin gr. $\frac{1}{12}$ given, followed by hot-

air bath, patient being quieted by chloroform while being put in it. Slight perspiration. Pulse still weaker, 160. 10.15, hot-air bath discontinued. 10.30 p.m., brandy ʒij given hypodermically. 10.45 p.m., death. No autopsy allowed.

Temperature.—The temperature was throughout above normal. It was 102° on admission. Its maximum, 103·2°, was reached three hours before delivery. By 10 a.m. on the morning after delivery it had sunk to 100·8°. It then again rose, and in the evening was 102·8°. Then it fell, and at 3 a.m. on the following morning had dropped to 100·8°. After this it again slowly and irregularly rose, till two hours before death it was 102·8°. I am not able to connect the slighter fluctuations of temperature with particular features of the disease or the treatment.

Urine. Quantity.—The catheter was passed every two hours, so that all the urine might be got. But the bed was often found wet, and the bladder empty. The first time urine was drawn off by the catheter, 2½ oz. of urine were in the bladder. The only time before delivery that the quantity of urine per hour could be estimated, the bladder in two hours contained 2 oz. of urine. In the twenty-four hours following delivery, the cather was passed eight times, and altogether 13¾ oz. of urine withdrawn. Four times, when the catheter was passed the bed was wet and bladder empty; and twice, although there was urine in the bladder, the bed was wet. Putting these aside, we have six periods of two hours each, in which the amount of urine secreted was known. Eleven ounces of urine was the total quantity of urine for these six periods, or a little under an ounce per hour. During the twenty-two hours preceeding death only 3½ oz. of urine were obtained, corresponding to periods making in all eight hours, or less than ½ oz. per hour.

The general result, therefore is, that before delivery the quantity of urine was below the average of health; after delivery it did not increase, and if anything, still further

diminished, and, during the day preceding death, very greatly diminished.

Specific gravity.—The quantity of urine was only once large enough for the specific gravity to be ascertained. This was immediately after labour; it was then 1017.

Albumen.—Six hours before delivery the urine contained $\frac{2}{5}$ of its bulk of albumen; two hours before delivery $\frac{4}{5}$ of its bulk. In the urine withdrawn next after delivery there was a slight diminution in albumen, but six hours after delivery the urine was nearly solid with albumen. After this the amount of albumen gradually, but not greatly diminished; and six hours before death there was still $\frac{1}{5}$ of albumen in the urine. The proportion of paraglobulin to serum-albumen is shown on the chart by thin lines side by side with thick ones; its maximum was as 4 to 10, and it was usually below this.

The case was thus peculiar in that the usual prompt and great diminution of albuminuria after delivery did not take place.

Urea.—The percentage of urea at the time of admission, 1·5, was rather below that of health. With the increase in the albuminuria which, as already been mentioned occurred during the six hours following delivery, there went diminution in the urea percentage, which eight hours after delivery had fallen to ·8 per cent. Then the amount of albumen diminished, and the percentage of urea rose, reaching twenty-four hours after delivery 2·9 per cent. The three subsequent examinations showed first a drop and then a rise, probably dependent on the degree of concentration of the urine.

As the nurses did not succeed in saving the whole of the urine, it is not possible to state the total amount of urea excreted. During the two hours preceding delivery 12·6 grains were eliminated, or 6·3 grains per hour. In the twenty-four hours following delivery, during the six periods of two hours each, in which the whole of the urine was saved, 59·1 grains of urea were excreted, or about five grains per hour. It therefore appears as if the urea excre-

tion during this time also was less than it should have been.

Sugar.—No sugar was found in the urine, although it was four times sought for.

Deposit.—The urine withdrawn next after delivery contained a deposit of blood. Although it was withdrawn by the catheter, yet, as the quantity of urine was small, I think the blood may have been a mechanical admixture. No blood was present in the urine at any other time. The next three specimens contained large and small epithelial and granular casts. No casts were found in any other specimens. The urine before delivery gave a precipitate of amorphous urates. With the exception of epithelium, there was no deposit other than these.

Case 3. *Ninth pregnancy; premonitory symptoms three weeks; fits beginning fourteen hours before delivery; eight fits in nine hours; slight pyrexia; cessation of fits and fall of temperature after morphia and before delivery; intra-uterine death of child and premature delivery; urine solid with serum-albumen; diminution of albuminuria following delivery; after delivery continuous rise of temperature and death by coma ten hours after delivery; diminished quantity of urine throughout; steady diminution of percentage of urea throughout.*—S. O—, aged 27, admitted into the London Hospital May 7th, 1890. (Reported by Dr. A. B. Roxburgh, Resident Accoucheur.)

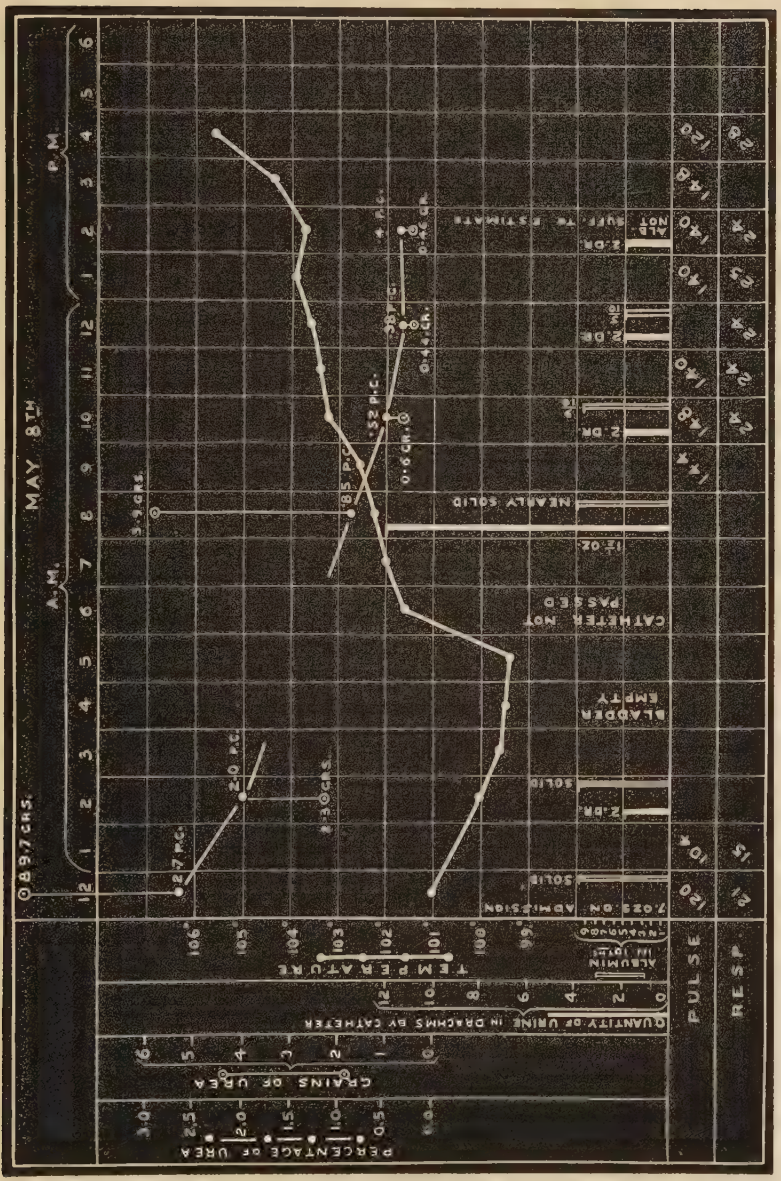
Previous health.—Had typhoid fever when aged 14. Never fits. Began to menstruate at fifteen; always regular; pain slight. Was married at eighteen. Had two miscarriages and six children, the last at Christmas, 1888. Labours easy. Much swelling of legs during pregnancy, not at other times. When waters burst, the amount coming away was at more than one confinement very great. Has for long suffered from pain in head.

Present illness.—Patient's mother (from whom the history was obtained, patient herself being unconscious) said that for three weeks patient had seemed languid, and

had complained that the pain in her head was worse. No affection of sight. She saw patient three days before admission, and noticed that her eyelids were puffy and her legs very much swollen; and patient said she felt very ill, and used expressions "I'm going home," &c., meaning that she thought she would die soon.

On May 7th, at 3.30 p.m., as patient was walking across the room, she fell down on the floor in a fit. Between 4 and 5 p.m. a second fit. Mother saw her at 5 p.m., she was then conscious, and recognised her mother, whom she told that she did not feel as if in labour, and did not expect to be confined for another fortnight. At 5.15 p.m. she had a third fit; at 5.35 p.m. a fourth; at 5.55 p.m. a fifth; each of these fits being preceded by vomiting. About 7.30 p.m. a sixth fit, not preceded by vomiting, but after which she put her hand to her back and stomach. At 11 p.m. a seventh fit. No vomiting. From 5 p.m. onwards she was unconscious.

At 11.50 p.m., May 7th, she was admitted. There was stertorous breathing. The tongue had been bitten; was swollen and projecting between the teeth. Conjunctivæ insensitive. Face and legs œdematous. Head drawn to the right. Respirations 21 per minute. Pulse 120, full. Knee-jerks very readily obtained. No ankle clonus. Nothing abnormal in retinæ to ophthalmoscopic examination. Morphia gr. $\frac{1}{2}$ given hypodermically. 12.10 a.m., conjunctivæ again sensitive. Pupils smaller than on admission. Patient resists with her arms when head is moved to one side. 12.30 a.m., fits, which was preceded by stoppage of breathing for fifteen or twenty seconds. The right side of face was affected first, then the right hand, and then the convulsive movements became general. Skin of arms and legs dry, but profuse sweating over forehead. Neither urine nor fæces passed. 1.10 a.m., pulse 104; resp. 15. Patient stopped breathing, and then had some twitching of orbital muscles, as if she were going to have a fit; but the convulsive movements did not extend. Profuse perspiration over forehead. Tongue so swollen as to inter-


MAY 8TH
A.M.
P.M.
PERCENTAGE OF UREA
GRAINS OF UREA
QUANTITY OF URINE IN DRACHMS BY CATHETER
TEMPERATURE
ALBUMIN IN 10TH
PULSE
RESP
7.025 ON ADMISSION
SOLID
2.DR.
BLADDER EMPTY
CATHETER NOT PASSED
NEARLY SOLID
ALB. NOT SUFF. TO ESTIMATE

CASE 3.

fere with respiration, and require to be held out with forceps. Heart's apex displaced outwards, but no murmur. Fœtal heart not heard. Morphia gr. ½ given hyporder-mically. 1.35 a.m., patient stopped breathing for forty seconds. Hands and lips blue; head drawn down on to right shoulder; eyes turned upwards; no affection of arms. Pulse slow and strong. Chloroform was given for five minutes. 2 a.m., patient given an enema of magnesium sulphate, the administration of which produced struggling; but it was retained. 3.10 a.m., patient stopped breathing for thirty seconds. A copious discharge of mucus from nose. 4.15 a.m., enema of soap and water given, which was retained. Pinkish discharge from vagina. 5.5 a.m., breathing more laboured; much rattling in throat and moist râles over chest. Conjunctivæ insensitive. 5.30 a.m., patient very restless, and making expulsive efforts. 5.45 a.m., fœtus, placenta, and membranes expelled, the latter unruptured. Fœtus, which was not decomposing, weighed 3¾ lbs, placenta 12 oz. 6.10 a.m., enema of glycerine ʒij given. 6.30 a.m., nutrient enema. 7.20 a.m., brandy ʒij given hypodermically. 8.30 a.m., patient stopped breathing for thirty seconds. Subsequent stop-pages of respiration occurred at times which are shown in the chart. 4 p.m., hot-air bath up to 100° F. given. 4.5 p.m., died. Autopsy forbidden by patient's friends.

Temperature.—On admission the temperature was 101°. Although the patient had a fit, the temperature fell for five hours after admission, reaching 99·4°. About the time of delivery the temperature began to rise, and rose continuously until death, reaching the last time it was taken 105·5°, although the patient had no more fits. This course of the temperature does not support the view that the elevation of temperature, which often precedes death from eclampsia, is the direct effect of the fits. The elevation of temperature was accompanied by acceleration of the pulse and respiration; but the hastening of the breathing was never more than corresponded to the increased frequency of the pulse.

Urine. Quantity.—The catheter was passed every two hours. The amounts withdrawn are shown on the chart. Some urine may have escaped with the discharges accompanying delivery, but, excepting for this, all the urine passed into the bladder was secured. On admission seven ounces were drawn off. It was not possible to find out when the patient had last passed water, and therefore impossible to say in what space of time this urine had been secreted. From admission until delivery only two drachms of urine were secreted. After delivery a slight diuresis took place ; the secretion during the three hours following delivery being at the rate of half an ounce per hour. From this time until death (eight hours), the secretion was only at the rate of ʒj per hour.

Specific Gravity.—The specific gravity of the urine drawn off on admission was very high, 1042. The subsequent specimens obtained were too small in quantity for the specific gravity to be easily estimated.

Albumen.—The urine drawn off on admission was solid with albumen, and it continued to contain about as much until seven hours after delivery, when the amount of albumen had sunk to half. The specimen withdrawn on admission was tested for paraglobulin, but the amount of serum-albumen was not appreciably affected by the removal of the paraglobulin. Subsequent specimens were so small in quantity that the paraglobulin was not separated.

The diminution in albuminuria following delivery is what seems to occur in almost every case, but was not so great or so rapid as in some of the other cases I have reported, and in which recovery took place. This case shows that a slight diminution does not necessarily imply improvement in the patient's condition.

Urea.—On admission the percentage of urea was about normal, 2·7 per cent. After this each successive examination showed a small and smaller percentage of urea, till before death it was only ·4 per cent. Taking the quantity of urea eliminated during the first eight hours of the

patient's admission, it was at the rate of about a grain per hour; during the last six hours only ·2 grains per hour. The diminution was thus absolute as well as relative.

The urine first drawn off (sp. gr. 1042) did not contain *sugar*. Subsequent specimens were not examined for sugar.

Deposit.—The first specimens examined gave a deposit of amorphous urates, squamous epithelium, epithelial and granular casts. The last specimen showed also red blood-corpuscles.

The occasional stoppage of breathing for half a minute or so at a time is an unusual feature of the case. These are noted on the chart.

Case 4.—*Second pregnancy; premonitory symptoms two days before fits; fits coming on about end of seventh month; spontaneous premature delivery (child living) three days after commencement of fits and four hours after last fit; fits almost continuous for ten hours before admission, ceasing after morphia and chloroform; no retinitis; slight pyrexia before delivery; steadily increasing dyspnœa and rising temperature, ending in death fifty-two hours after delivery; urine solid with albumen before delivery; some diminution in albuminuria after delivery; no diminution in urea percentage; quantity of urine and urea diminished before delivery, rising, but not to normal rate, after delivery; acute degenerative changes in renal cortices; pulmonary and cerebral hæmorrhages.*—M. J. M—, aged 26, admitted into the London Hospital June 12th, 1890. (Reported by Dr. A. B. Roxburgh, Resident Accoucheur, and Mr. A. H. Thompson, Clinical Clerk).

Patient had had one child seven years ago; labour good; no excessive hæmorrhage. Since then, until the present illness, she had had good health. Had never had a fit. Had always been "very nervous."

She last menstruated in October, 1889, and when admitted supposed herself seven months pregnant. For two months had complained that her legs swelled. On June 7 they

were so swollen that she could not get her boots on, but she was still able to walk. On that day she also complained of pain in the head, which had continued off and on since.

On June 9th she had a fit, and after this she stopped in bed. There was no further fit till June 11th. On June 11th fits recurred, and she was described has having had them almost continuously until admission; but no definite statement of their number could be obtained. She was admitted on June 12th at 8 p.m.

On admission pulse was 90, resp. 30. She was given half a grain of morphia subcutaneously. At 8.20 p.m. patient had a fit lasting fifty seconds. It began in the right arm, and head and eyes were turned to the right. Pupils were small before the fit, but rapidly dilated and then contracted during it. 8.25 p.m., patient quite rigid, with stertorous breathing and opisthotonus. 8.30 p.m., os uteri size of a florin, membranes not ruptured, presentation left occipito-anterior. 8.33 p.m., patient rigid again, with stertorous breathing. After this had passed off the knee-jerks were found to be exaggerated, and ankle clonus obtained. Some œdema of legs. Rhonchi in the chest. No cardiac murmur. Chloroform was administered; an enema of sulphate of magnesia was given, and a drop of croton oil was placed on the tongue. 8.50 p.m., another fit, but slight and short. After this no further fits occurred. 11 p.m., ophthalmoscopic examination. No retinal hæmorrhages. Midnight, pulse and respiration have gradually increased since admission. Pulse now 140, respiration 38.

June 13th, 12.30 a.m.—Patient delivered of a living male fœtus. After this the breathing continued to get worse. 4 a.m., patient begins to take more notice when anything is done for her. At one time, when her mouth was being washed out, became suddenly excited and very restless. This lasted for eight minutes. 10 a.m., breathing has somewhat improved since 5 a.m. Pulse now 128, resp. 39. No ankle clonus. Knee-jerks less

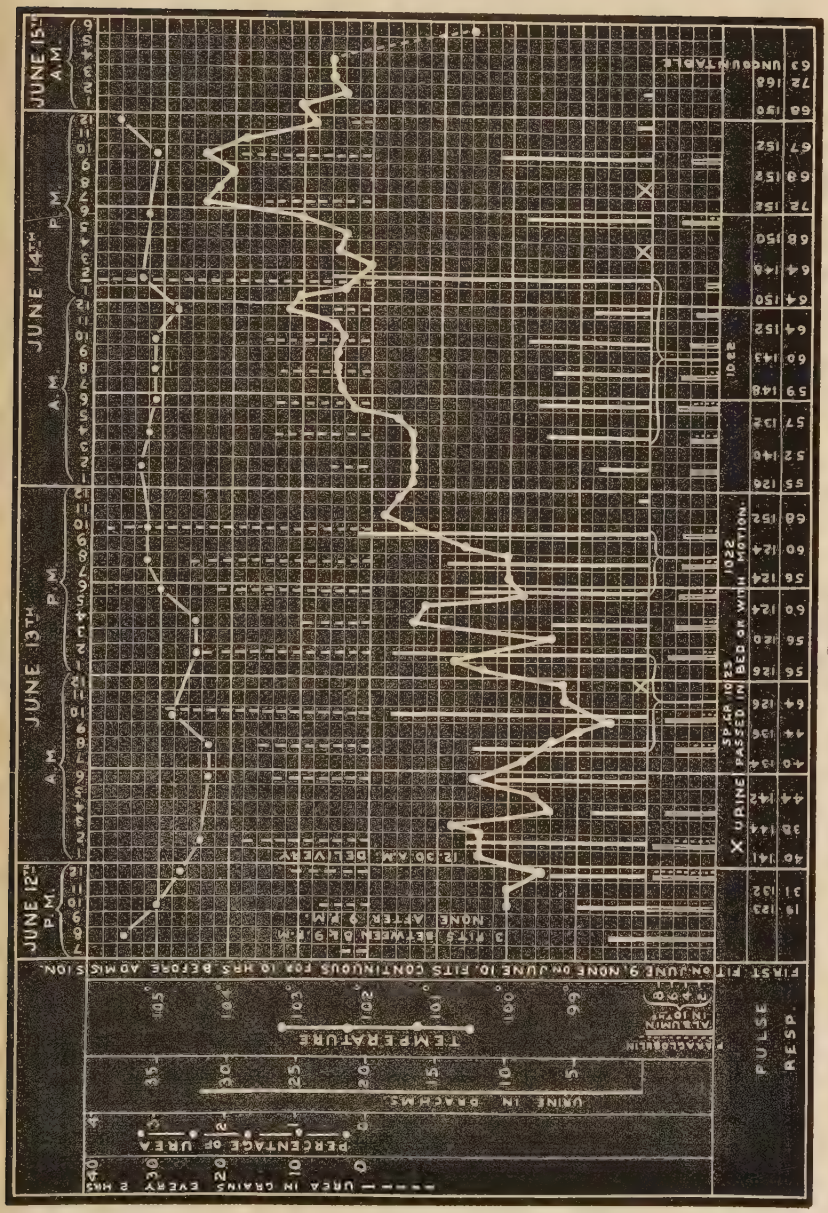
marked. Noon, a jacket-poultice ordered to chest, to be changed every two hours. Patient is only half conscious, and therefore has to be fed by an œsophageal tube. To have Amm. Carb. gr. x, Tr. Digitalis ɱv, Inf. Senegæ ad. ʒij every two hours. 6 p.m., was fed by an œsophageal tube at 11.45 a.m., and again at 3 p.m. Is now more sensible; can swallow fairly well, and appears to recognise her husband. To ophthalmoscopic examination left disc seems rather congested, but there are no hæmorrhages. Respirations have been getting more rapid since the morning, and are now about 60 per minute. 11 p.m., patient put in a wet pack at a temperature of about 80°.

14th.—Wet pack renewed at temperature of 100°, at 4, 6, and 9 a.m. Has taken during night ʒiij brandy and ʒxvj milk. 10 a.m., patient very restless. 12.45 p.m., wet pack discontinued. 1 p.m., jacket-poultice applied. This was removed at 6 p.m. Respirations were between 60 and 70 per minute throughout the day. Between 9 a.m. and 9 p.m. took brandy ʒiij, whiskey ʒivss, milk ʒxxxij. 9 p.m., ice cradle applied. 11 p.m., patient struggling for breath; dulness and crepitation at bases of both lungs.

15th.—2 a.m., pulse so weak that it can scarcely be counted. Given 5 grains of caffein in an ounce of hot coffee. Ice cradle removed and patient wrapped in blanket. The pulse continued to get weaker, the breathing more difficult. 4.27 a.m., patient died. The child only lived a few hours.

The *autopsy* was made by my colleague, Dr. James Anderson. The record runs, "Puerperal eclampsia; parenchymatous nephritis; old pericarditis; small cerebral hæmorrhages in cortex; pulmonary apoplexies."

Sections from the kidneys were prepared, and submitted to my colleague, Dr. Charlewood Turner, who has favoured me with the following report upon them:—"They show recent degenerative changes of the cortex, without any older or cirrhotic lesions; changes attributable to some toxic matter in the blood. Granular degeneration and


JUNE 12TH P.M.
JUNE 13TH A.M.
JUNE 14TH P.M.
JUNE 15TH A.M.
12.30 A.M. DELIVERY
3 FITS BETWEEN 8 & 9 P.M.
NONE AFTER 9 P.M.
X URINE
SP. GR. 1025 PASSED IN BED OR WITH MOTION.
1022
1022
UNCOUNTABLE
FIRST FIT ON JUNE 9, NONE ON JUNE 10. FITS CONTINUOUS FOR 10 HRS BEFORE ADMISSION.
TEMPERATURE
PARACLOBULIN
ALBUMIN IN 10TH
URINE IN DRACHMS
PERCENTAGE OF UREA
UREA IN GRAINS EVERY 2 HRS
PULSE
RESP.

CASE 4.

swelling of the epithelium of the convoluted tubes, the nuclei of which are invisible, and swelling of the connective tissue throughout, without infiltration of leucocytes. In the medullary tissue the epithelium of the loops and connecting tubes appears normal. Some of the loops contain casts. There is much vascular congestion in this part. The glomeruli appear normal. There is no exudation in the capsules."

Temperature.—The temperature on admission was 100°. Two hours and a half after delivery it had risen to 100·8°. Then it sank, reaching normal ten hours after delivery. From this time it steadily, though with slight irregularities, rose until six hours before death, when it reached 104·4°. In the six hours which preceded death it fell to 102·6°.

Urine. Quantity.—The quantity of urine was throughout diminished. During the four hours ending half an hour before delivery, 1½ oz. of urine passed into the bladder, a rate of secretion corresponding to about 9 oz. in the twenty-four hours. After delivery, as in many other cases, there was some diuresis, but the urine did not reach the normal standard of quantity. During the twenty-one hours next following delivery urine was withdrawn by the catheter ten times, being lost in the bed once only. The amount of urine withdrawn was 16 oz. 5 dr., corresponding to a secretion of about 20 oz. in the twenty-four hours. In the next twenty-four hours, as the temperature rose and the patient got worse, the quantity of urine diminished. Urine was ten times withdrawn by the catheter, twice being lost; and in all 10 oz. 3 dr. were collected, corresponding to a secretion for the twenty-four hours of about 12½ oz. I select this period of time because the amount of fluid swallowed in it is recorded, viz. 58½ oz.

Specific gravity.—The specific gravity was tested three times, several samples of urine being mixed together for the purpose; which these were is shown on the chart.

It was from 1025 to 1022, the later samples being the lowest.

Albumen.—The urine drawn off on admission when boiled became solid with albumen. Subsequent specimens withdrawn before delivery were not quite so solid, but there was very little difference. After delivery there was a diminution, but the drop was far from being so sudden or so great as in most of the other cases reported. Throughout the rest of the illness there was always a considerable quantity, more than one fifth, of albumen in the urine.

The first urine tested for paraglobulin was that withdrawn half an hour before delivery, and it gave a copious precipitate with sulphate of magnesia, nearly filling the tube. After delivery, the paraglobulin diminished more rapidly, and showed a greater diminution than the total albumen, and thirty-six hours after delivery only a trace of paraglobulin was present.

Urea.—The percentage of urea, or rather of nitrogenous matter, was very high throughout, varying from 3·2 to 3·8.

The quantity of nitrogenous matter excreted during the four hours preceding delivery was 18 gr., or 4½ gr. per hour, corresponding to 98 gr. in the twenty-four hours. During the twenty-one hours following delivery the quantity of nitrogenous matter was ascertained for seventeen hours, and was 176 grs. or 10·3 grs. per hour, corresponding to an excretion for twenty-four hours of 247·2 grs. In the next twenty-four hours the urine was drawn off ten times, and the specimens contained 155 grs. of urea, or 7·75 grs. per hour, corresponding to 186 grs. in the twenty-four hours.

The amount of urea excreted previous to delivery, and shortly after the cessation of fits, was thus much below the average of health. After delivery, although it did not reach the average of health, yet it was not below a rate consistent with health. The amount somewhat diminished as the condition of the lungs got worse.

The quantity of urea was estimated by the sodium hypobromite process. In one examination of the urine withdrawn after the fits, Dr. Roxburgh (Res. Accoucheur) found the chlorides much diminished; but whether this deficiency continued was not ascertained. I mention it because it affords a possible explanation of the discrepancy between the specific gravity of the urine and the quantity of urea.

Deposit.—The urine was for the first twelve hours turbid, after that generally clear. That drawn off before delivery contained epithelial casts, large and small granular casts, and amorphous urates. After delivery the casts in the urine were much less numerous.

Case 5.—*Third pregnancy; fits beginning in first stage of labour; forceps delivery; child living; six fits before delivery within period of three and a quarter hours, the last half an hour before delivery; then four and a half hours without fits; then five more fits within period of nine and a half hours; no retinitis; great and sudden fluctuations of temperature, not showing any relation to fits; urine before delivery solid with albumen (very little paraglobulin); diminution of albumen after delivery; more rapid diminution after cessation of fits; no casts; slightly diminished quantity of urine and percentage of urea during second set of fits; slight diuresis and increased urea excretion during lying-in; deficient memory for at least a week after fits; recovery.*—Mrs. S—, æt. 24, admitted into the General Lying-in Hospital August 15th, 1890, at 7.30 a.m.

For the notes of this case, and also for the analyses of the urine, I am indebted to Mr. C. H. James, House Physician to the hospital.

Patient had had two children, both labours natural and easy, but she said that for a little while after her first confinement her sight was bad. She had never had a fit.

Patient believed herself at the full term of her third pregnancy. Full information as to the date of premonitary symptoms was not obtained, because they were not

definite enough to lead those in charge to expect fits, and after recovery patient's memory was too defective to enable her to give an account of them. The pains began at 3 a.m. on August 15th. They then continued regularly, and she came in a cab to the hospital, reaching it at 7.30 a.m. She vomited on the way in the cab, but there was no sickness after admission. She complained of frontal headache and severe epigastric pain just below ensiform cartilage. On admission the os was the size of a florin; membranes intact; presentation first cranial. She was thin and somewhat anæmic. No cough or dyspnœa; no cardiac murmur; no œdema of legs. At 11.30 a.m. patient had a fit. It was of short duration, and therefore was not very accurately observed. After it the urine was drawn off, and found to be nearly solid with albumen. 12.10 p.m., a second fit, which began with twitching of the eyelids. Pupils contracted during fit, eyes turned to left. Pupils contracted at beginning of fit, dilated towards end. Conjunctival reflex throughout. After this fit 20 gr. of chloral were given. An enema had previously been given, and the bowels acted. 12.50 p.m., a third fit. 1 p.m., os uteri size of crown-piece. Membranes ruptured. 1.10 p.m., Morph. Hyd. gr. $\frac{1}{4}$ injected. 1.20 p.m., fourth fit, a very severe one. 2.5 p.m., fifth fit. 2.40 p.m., os uteri fully dilated. 2.46 p.m., sixth fit. Between the fits patient was restless, apparently only half conscious, talking incoherently, but answering questions rationally when roused. 3.15 p.m., head on perineum. Delivery finished with forceps. Child born in state of suspended animation, but revived after ten minutes artificial respiration. Weight $6\frac{1}{2}$ lb., female. Placenta expressed soon afterwards. Blood lost 5 oz.

After delivery patient remained in a half conscious state, only answering questions when roused, till the evening. 8.15 p.m., seventh fit. 8.50 p.m., eighth fit. 9.30 p.m., ninth fit. Between the fits the patient was unconscious. 10.4 p.m., tenth fit. Just before this fit

chloroform was administered, and the patient kept under its influence till nearly 1 a.m. After the chloroform had been given a little while, profuse perspiration came on, the skin having previously been dry and harsh.

August 16th.—5.45 a.m., eleventh fit, a very slight one. 11 a.m., patient is drowsy, and can only with difficulty be got to answer questions, and when she does so her replies are incorrect or inappropriate Taking small quantities of milk. Evening, patient has slept the whole day, turning on her side from time to time. No more fits. Chloral hydrate gr. xv, and Pot. Bromid. gr. xx given. Bowels not open since before delivery. To have castor oil ℥j next morning.

17th.—Patient brighter and answers questions rationally, but has no memory of recent events. Recognised her husband. Complains that her sight is not good; everything looks "mistified;" the gas jets sometimes seem double. Bowels open four times. Evening, patient takes plenty of milk, but no solid food. Examined ophthalmoscopically, no retinal changes detected.

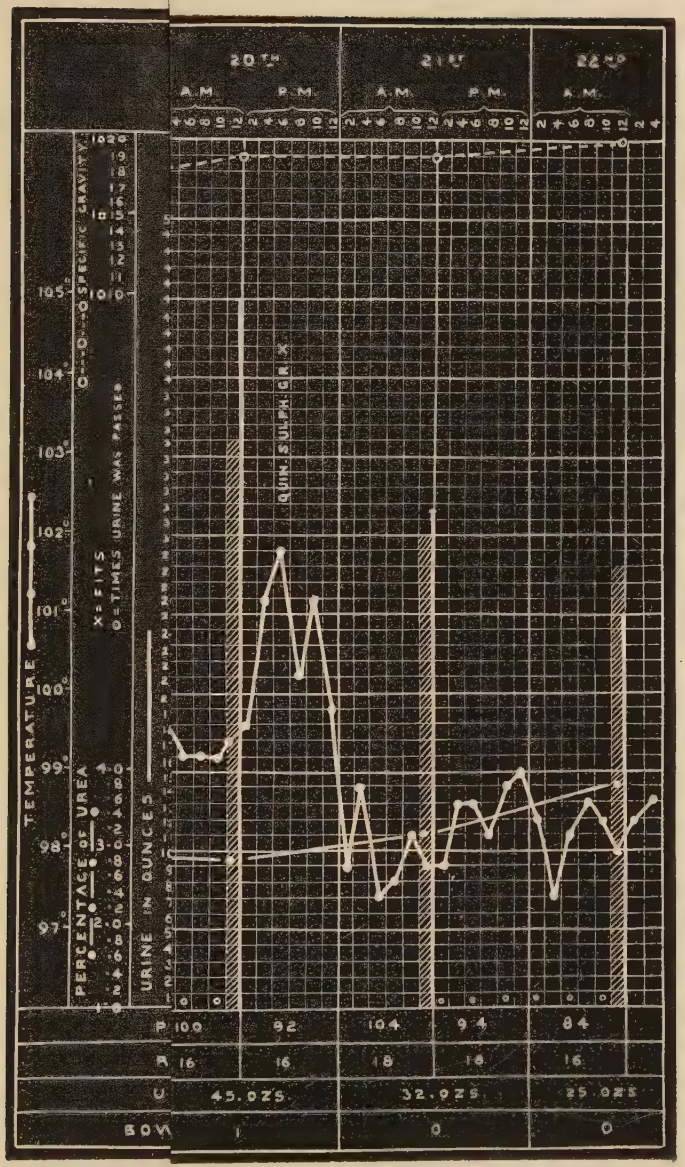
18th.—Patient to-day feels much better and talks cheerfully. Has now no complaint as to her sight, except that every now and then things seem to her vision to swell up, and that she occasionally sees faces on the wall opposite. Memory is improving, and patient is quite rational.

19th.—Milk in breasts.

23rd.—Sleeps and eats well. Has now no ocular delusions of any kind, but memory has not yet quite returned. Allowed to sit up in bed, and ordered a mixture of iron and quinine.

29th.—Patient and child quite well; sent to convalescent home.

Temperature.—The fluctuations of temperature in this case were difficult to understand. At 8 a.m., before the fits had begun, it was normal. At 4 p.m., after the first six fits, and three quarters of an hour after delivery, it had run up to 105°, but by 6 p.m., no more fits having occurred, it was 98·8°, and at 8 p.m. 98·6°. Then the


20TH
21ST
22ND
A.M.
P.M.
TEMPERATURE
PERCENTAGE OF UREA
URINE IN OUNCES
SPECIFIC GRAVITY
X = FITS
O = TIMES URINE WAS PASSED
QUIN. SULPH. GR. X
P 100 92 104 94 84
R 16 16 18 18 16
U 45.0ZS 32.9ZS 25.0ZS
BOWELS 1 0 0

fits recommenced, and the temperature at 10 p.m. had risen to 101·5°. So far the course of the temperature was in accord with the view that the fits produce the increase of body-heat. But the course of the temperature afterwards was at variance with this idea, for from this time the body-heat diminished, reaching normal at 8 a.m., although the patient had had two more fits.

On the fourth, fifth, and sixth days of the lying-inthere were afternoon temperatures of 102·2°, 102·6°, and 101·8°. No evident cause was found for these, and on each occasion a full dose of quinine was followed by a fall in temperature.

Urine. Quantity.—Instructions were given that the urine should be drawn off, at first every two hours, then every four hours, and after the second day before each action of the bowels. But these instructions were very imperfectly carried out, so that I have no accurate record of the amount of urine secreted during the stress of the disease. The quantities recorded during the lying-in period may, I think, be relied upon. The catheter was passed once before delivery, but I have no record of what interval separated this from the last emptying of the bladder. It was passed three quarters of an hour after delivery, and the bladder found empty. Four hours after delivery 5 oz. were drawn off, and nine hours after delivery 7½ oz. During this time the patient was having the second set of fits. The secretion, it will be seen, was at the rate of about 1½ oz. per hour. If there be any error in this statement it is in the direction of under-estimating the quantity. In the twenty-four hours which follow 24½ oz. were drawn off, and the urine was twice passed in bed. The amount drawn off was the product of sixteen hours, about the same rate of secretion as in the previous eight hours. The next twenty-four hours shows only 34½ oz. of urine, but the bowels were open four times, and therefore probably a good deal was lost. In the twenty-four hours after this 65 oz. were passed. The amounts on the subsequent days do not call for special remark. Briefly,

the amount of urine prior to delivery, and during the first set of fits was not known; after delivery and during the second set of fits it was very little less than normal; in the third and fourth days of childbed there was diuresis.

Specific gravity.—This varied from 1010 to 1020. It was lowest during the diuresis on the third and fourth days of lying-in, when it ranged between 1010 and 1015. But before delivery, and later in the lying-in, it was 1020 or thereabouts.

Albumen.—Before delivery the urine was solid with albumen, and so was the urine withdrawn three quarters of an hour after delivery. During the second set of fits it diminished slightly, but more rapidly after these fits had ceased. Seven hours after the second set of fits it had sunk to $\frac{1}{4}$; and twelve hours later to a mere trace. On the fourth day of childbed albumen was absent from the urine.

The urine before delivery, that drawn three quarters of an hour after delivery, and one specimen on the day following, were tested with magnesium sulphate for paraglobulin; but very little difference was found between the amounts of serum-albumen before and after withdrawal of the paraglobulin.

Urea—The urea was estimated by Squibb's apparatus. The observations of the excretion of urea were imperfect during the stress of the disease, like those of the quantity of urine, and for the same reason. The percentage of urea in the urine drawn off before delivery, and in that after delivery, before the end of the second set of fits, although not much below the average of health, was yet below that present throughout the rest of the patient's stay in hospital, excepting during the diuresis on the fourth day of lying-in.

The total quantity of urea after the second day of childbed was not notably below the average of health, and on the fourth, fifth, and sixth days was rather above it.

This case, unfortunately, does not teach anything about the state of urea excretion preceding and during the stress

of the disease ; but it at least shows this, that, if the urea excretion has been diminished, a very considerable restoration of this function may take place without cessation of the fits.

Deposit.—The urine drawn off before labour, although smoky in colour, and nearly solid with albumen, contained neither pus nor blood. It was several times subsequently examined microscopically, but no casts were at any time found.

Addendum.—Further history of case 5, in paper published in 'Trans.,' vol. xxxii, p. 33 ("Labour at eight months, with fits ; dead child," May 23rd, 1889).

Dec. 19th, 1890.—Patient had her second child eight months ago. No fits. Weaned child three months ago. Has menstruated twice since. Urine drawn off by catheter, contains $\frac{1}{6}$ albumen, epithelial cells, a few pus-cells, casts. She complains of gnawing pain at the epigastrium. No nausea or vomiting. Appetite good. No œdema anywhere. No headache. Not anæmic. Has not lost flesh. Thinks herself quite well, except for the gnawing pain mentioned.

I may now summarise the facts of these twelve cases. For convenience I shall refer to them by consecutive numbers, as follows :

Paper 1, 'Trans.,' vol. xxix.	Case 1 .	1
	,, 2 .	2
Paper 2, 'Trans.,' vol. xxxii.	Case 1 .	3
	,, 2 .	4
	,, 3 .	5
	,, 4 .	6
	,, 5 .	7
Present communication.	Case 1 .	8
	,, 2 .	9
	,, 3 .	10
	,, 4 .	11
	,, 5 .	12

The *number of fits* was as follows :

In four fatal cases, 4, 8, 11, and in the other described as having been "almost continuous."

In eight that recovered, 5, 7, 8, 11, about 16, 24, more than 6, more than 15.

As to *Parity*.—In seven it was the first pregnancy, in two the second, in one the third, in one the ninth, in one the tenth.

As to *time of onset*.—In nine the fits began during pregnancy, in two during the first stage of labour, in one after delivery. In all of those attacked during pregnancy, labour spontaneously came on prematurely.

As to the *effect on the child*.—In six the children were born living (1, 3, 8, 9, 11, 12) ; in four died in utero (2, 4, 7, 10) ; and one was not viable, being of only five months intra-uterine age ; and one patient died undelivered.

Temperature.—In two cases the fits were accompanied by slight rise in temperature, up to 100° and 100·8° (1, 3). In two cases the temperature rose for four to six hours after the fits had ceased (2, 4). In one case (fatal) the temperature was below normal (6). In two cases the temperature was raised when first taken (that is, after some fits had occurred) and fell subsequently, although fits did not cease to occur (8, 10). In four cases the temperature showed a slight rise and slight fall during the fits (5, 7, 9, 11). In one case there were great and sudden variations of temperature, without any apparent relation to the fits (12).

These cases do not show that the fits have any immediate or direct effect on the temperature.

Four cases ended in death. In one the temperature was subnormal (6). In one the difficult of breathing made it appear that death was immediately due to pulmonary complications ; but there was no autopsy (9). Here there was a moderate rise of temperature (102·8°) just before death. In one death took place by coma with steadily rising temperature, without signs of lung com-

plication; but there was no autopsy (10). In the other death place as a result of hæmorrhages into lungs and brain (11). Here temperature gradually rose to 104.4° before, but fell again during the hour immediately preceding dissolution.

Urine. Quantity.—In nine of the twelve cases the quantity of urine was diminished during fits, the rate of secretion being from one twelfth to one fourth or one third of the average of health (Cases 1, 2, 3, 5, 7, 8, 9, 10, 11).

In two cases the quantity of urine was increased; in one considerably, the other slightly (Cases 4 and 6). To the other case (12) I shall refer presently.

Of the twelve cases, eight recovered, four died. In one of the fatal cases there was no diminution in the quantity of urine (6). In each of the other three (9, 10, 11) it was diminished during the fits, and not re-established.

In all the eight that recovered, some increase in the quantity of urine followed the cessation of the fits, and still greater increase followed delivery in the cases in which this did not occur till after the fits had ceased.

The re-establishment of the renal secretion as to quantity did not begin until some hours after the cessation of the fits; in Case 2 eight hours; Case 3 six hours; Case 8 twenty-four hours.

In two cases the fits continued, although the amount of urine was not much deficient. In one of these (7) the fits were protracted over an unusual period. In the other (12) there were two sets of fits; one before, the other after delivery, and the urine was only measured during the latter.

These facts suggest that the presence or absence of diuresis after delivery may be an important element in prognosis.

Albumen.—In all the cases there was a time in the course of the case at which the urine was solid, or nearly so, with albumen. In nine out of the twelve this was on first examination, the patient having already had some

fits before the urine was examined. Of the other three, one patient (6) was under treatment for Bright's disease when the fits began, and the urine became solid with albumen while the patient was having fits. One case (4) was that in which there was polyuria, and in this case the amount of albumen became increased while the patient was having fits. In the remaining one (9) the amount of albumen greatly increased with the fits. In this case the diminution in the quantity of urine was not so marked as in most. One patient (6) died undelivered, and in one the fits were post-partum. Of the other ten, in five there was a great drop in the amount of albumen very soon after delivery. The five in which this did not occur comprise three fatal cases (9, 10, 11), and two in which fits persisted some time after delivery (7, 12).

These facts suggest that the albuminuria may be partly a result of the fits; and that the persistence or rapid diminution of albuminuria after delivery may be an important prognostic sign.

In nine cases the amounts of *paraglobulin and serum-albumen* were separately ascertained.

In five the albuminous precipitate contained much paraglobulin (1, 3, 5, 8, 11); in four only a little (4, 9, 10, 12). These four comprise the case of polyuria in which renal disease persisted after childbed; one case in which the patient died from lung sequel; the case in which the patient died by coma with rapidly rising temperature; and in the other case the urine was not tested during the height of the disease.

After the cessation of the fits the paraglobulin diminished more quickly than the serum-albumen in five cases (4, 5, 8, 9, 11). In two cases (1, 3) the serum-albumen is diminished more rapidly than the paraglobulin. Both these patients recovered.

Urea.—In each of the twelve cases there was diminution of the urea in the urine during the period of the fits.

In seven of the cases (1, 2, 4, 5, 6, 8, 10) there was

diminution of the percentage of urea as well as in the absolute quantity.

In five (3, 7, 9, 11, 12) there was either no diminution or only slight diminution of the percentage, but, owing to the lessened quantity of urine, a diminution in the absolute amount of urea excreted by the kidneys.

In the cases which recovered, restoration of the urea excretion to the normal standard did not take place till some hours after the cessation of the fits.

In the case (4) in which the quantity of urine was much increased, the percentage of urea was so much diminished that its total quantity was much below the average of health, notwithstanding the increase in the amount of urine.

In the case (10) that died in coma with steadily rising temperature, the percentage of urea went on continually diminishing until death.

In the case (6) that died in subnormal temperature and coma, the percentage of urea also steadily diminished; but in this case, in consequence of the increase in the quantity of urine, the total amount of urea excreted, although below the average of health, yet, in the twenty-four hours preceding death, did not sink below the average of the few days previously.

In the two cases (9, 11) that proved fatal by lung sequelæ, the percentage of urea was not notably diminished.

In the case (12) in which a second set of fits, separated from the first by an interval, occurred after delivery, the percentage and quantity of nitrogenous matter were only slightly diminished during the second set of fits. The condition of the urine was not ascertained during the first set of fits.

Specific gravity.—In the cases in which the quantity of urine was much diminished this was at the beginning very high, 1030 (3), 1037 (1), 1044 (2), and afterwards fell. In the case that died by coma with rising temperature it was very high at the outset, but was not afterwards ascertained. In the cases of polyuria it was low, 1007 (4),

1010 (6), and in the one that recovered afterwards rose. In the two cases that died from subsequent lung troubles (9, 11) it was not much if at all raised; nor was it in the two cases in which the fits persisted for an unusually long period (8, 12).

Casts.—In two cases no casts were found in the urine. In six there were casts, but they were not numerous. In three there were many casts.

Retinitis.—In two retinitis was present. These two were those in which the quantity of urine was increased. One died, and in the other the renal disease persisted after the period of childbed.

Twelve cases seems to me too small a number from which to generalise as to the pathology and course of the disease. I therefore refrain from discussion of this subject until I am able to do so upon a larger number of cases as a basis.

But I may recapitulate the following facts which are brought out by a comparison of the cases, and which, if confirmed by a larger number of observations, will have important practical applications.

1. Four children out of ten died in utero.

2. The cases show no direct effect of the fits in the temperature.

3. In all the cases observed at the beginning of the disease, except two, the quantity of urine was diminished. Of the two exceptions one died, and in the other kidney disease persisted after childbed.

4. In all the excretion of urea in the urine was absolutely diminished, and in most the percentage was diminished.

5. In all the urine was at one time solid or nearly so with albumen. Three of the cases seem to show that the fits increase the amount of albumen. The two cases in which the albuminous precipitate was most largely composed of paraglobulin both recovered. Of three, in which the amount of paraglobulin was less than in the majority, two died and in one renal disease persisted after childbed.

6. In all that recovered there was rapid increase in the amount of urine passed, and in the quantity of urea contained in it, and diminution in the amount of albumen. This restoration did not, as a rule, take place till some hours after the cessation of the fits, and went on more rapidly after delivery in the cases in which cessation of fits preceded delivery. It did not take place in the cases which died.

7. Retinitis was only present in two cases, both of which died.

Dr. PETER HORROCKS called attention to the fact that in ordinary non-puerperal cases of eclampsia the prognosis was, as a rule, grave when the temperature was high. In some such cases the temperature continued to rise after death. He asked if these observations had been made in Dr. Herman's cases of puerperal eclampsia. He also asked whether the casts found in the urine were epithelial, as in tubal nephritis.

Dr. HERMAN said that the kind of casts seen in his cases was stated in the notes of each case. So far as he remembered they were always hyaline or granular, not epithelial. His cases showed that the mode of death observed in some cases, with temperature rising up to the time of death, was not invariable. The temperature had not been taken after death in any of his cases.

CYSTS OF THE VAGINA: THEIR ÆTIOLOGY, PATHOLOGY, AND TREATMENT.

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(*Abstract.*)

In this communication only cysts with liquid contents are referred to; air-cysts are purposely omitted.

Cysts of the vagina are classified as submucous, interstitial, and circumvaginal, though the author prefers the classification of superficial and deep, as it expresses their situation more accurately from a clinical point of view.

Reference is made to the number of cysts generally found in each case, and their site, shape, size, and rate of growth are all discussed.

They are most frequently found in married women of middle age, but practically no period of life can be said to be exempt from them.

The epithelium lining the interior of the cyst is most usually of the low cylindrical kind, but other varieties have been described.

The question of vaginal glands is touched upon, and the opinions of different observers are quoted to show that in all probability there is an absence of glands in the vagina. The author figures a vaginal crypt as the nearest approach to a vaginal gland which has ever been observed by him. From these crypts it is possible cysts may occasionally arise under pathological conditions. The origin of cysts from connective-tissue spaces, either as serous or blood effusions, is discussed; their derivation from dilated lymph-channels, remnants of Müllerian ducts, Gartner's

canals, and urethral glands are all reviewed as shortly as possible; and, finally, the symptoms they give rise to and the methods of treating them are given.

The conclusions reached by the author are that cysts of the vagina are derived from various sources, and may be divided into two classes:

1. *Accidental.*—Cysts in this class originate (*a*) in crypts of the vagina in a few instances, by occlusion of their orifices and subsequent dilatation; (*b*) as effusions of serous fluid or blood into the connective tissue; (*c*) in dilated lymph-channels; (*d*) in glands of the urethra; (*e*) in hydatid cysts—this variety ought not to be included amongst vaginal cysts.

2. *Congenital.*—(*a*) From persistent remains of Gartner's canals; (*b*) from persistent remains of Müllerian ducts.

Four microscopical drawings are included to aid in the description of certain points, and also a list giving the literature of the subject.

Two circumstances have induced the author to bring the subject of cysts of the vagina before the notice of this Society. In the first place, on looking through the 'Obstetrical Transactions,' reports of isolated cases are to be found, but nothing attempting their ætiology, pathology, and treatment; and secondly, because he has had an opportunity of observing fourteen cases during the past four years, most of which were operated on and their walls subjected to microscopical examination, either by himself or by Mr. E. Solly, late Surgical Registrar at St. Thomas's Hospital.

Besides these cases he has collected others from medical literature since 1887, which, together with fourteen under his own observation, make a total of over fifty cases, and upon an examination of this series the present communication is based.

Cysts of the vagina may be classified as submucous, interstitial, and perivaginal, according to the position they occupy with regard to the various layers of the vagina. But as I hope to show later on, this classification, though sound histologically, is of little value, as owing to various causes it is generally difficult, if not impossible, to accurately define their situation and place of origin. They may also be classified as (1) superficial, and (2) deep; but

a cyst which at first was deeply situated may become superficial as it increases in size. Personally, I would prefer this last classification as being simpler and clinically more correct than one founded on an anatomical basis.

They may have liquid or gaseous contents, the former being the most common, and in this paper only cysts with liquid contents will be treated of; air cysts, the colpohyperplasia cystica of Winckel, or colpitis vesiculosa emphysematosa of Ruge will be excluded.

These cysts must be considered somewhat rare, though some observers describe them as common. Thus Graefe in one year met with twenty cases, and Von Preuschen in thirty-six cases found six; Lee, of New York, considers them common, though he gives no numbers to prove his statement. On the other hand, many authorities of large experience state that these cysts are rare (Matthews Duncan, Winckel, Breisky). Johnston in one year examined 500 women and only came across one; Gurlt found only three vaginal cysts out of a total of 11,000 cases suffering with tumours of the generative organs.

This difference of opinion is accounted for when we consider how easily a small cyst with lax walls may be passed over unnoticed. Only recently this occurred to me at the Samaritan Hospital in a patient with a cyst in the lower third of the anterior vaginal wall. This tumour was the size of a walnut with lax walls, and was only discovered at the third examination. These tumours, though comparatively rare, are, as Winckel says, "the commonest of vaginal growths, and in all probability of more frequent occurrence than is generally supposed."

As a rule, these growths occur as single tumours (according to Winckel in 82 per cent.), but they are also found as multiple growths occupying the same or opposite walls of the vagina. Kiwisch narrates one case in which five cysts were removed, and Schroeder gives details of six cysts removed at the same sitting. In the fourteen cases coming under my own observation, all were single cysts.

The more recent observers of these growths, are of opinion that the site of these tumours is most frequently the anterior vaginal wall, though the posterior wall is also often affected, so that the difference between the number of cysts found in each wall is comparatively small, while the lateral walls are more rarely affected. Breisky, in his article on cysts of the vagina, says, "the site is a trifle more frequent on the anterior than on the posterior wall, more rarely on the lateral walls." In this view he is supported by Winckel, Matthews Duncan, Graefe, and Johnston. In this connection the following table will show the relative number of cysts found on each wall:

	Walls.		
	Anterior	Posterior	Lateral
Graefe	29	21	11
Winckel	19	14	5
Johnston	60	57	18
Rutherfoord (collected by) ...	25	15	4

In Johnston's series of 168 cases are included most probably the cases collected by Graefe and Winckel. In the series of 52 collected by myself no case mentioned by Johnston is included, as all were reported subsequently to his article in 1887.

From this table it will be seen that the choice of location falls chiefly on the anterior wall, though the posterior wall is very nearly as frequently affected. Takahasi and Lee consider that the anterior and posterior wall are affected equally. Von Preuschen and Froment, on the other hand, believe that the posterior wall is most commonly the site of these tumours. Whatever difference of opinion there may be as to the frequency of occurrence of these cysts in the anterior or posterior walls, everyone admits the rarity of them on the lateral wall. The cyst may be situated on the upper, middle, or lower third of the vaginal wall, though we frequently find the new growth involving two of these divisions, or even the entire wall.

The most usual part of the wall involved is the lower third, a part affected in 66 per cent. of all cases, according

to Winckel. Sinéty states that "they occur a little way from the vulvar orifice." Matthews Duncan and Breisky, though they do not definitely describe cysts as occurring most frequently in this position, infer it from the narration of cases; while Hart and Barbour state that the lower third of the vagina is most commonly involved. Johnston, on the other hand, finds from his collected cases that the upper and lower half are about equally affected, while Lee says "they occur indifferently in the lower, middle, or upper third of the vagina." Amongst the cases collected by myself the lower third was involved forty times, the upper third is mentioned as being involved only four times, and the entire wall once. Von Preuschen is alone in declaring that the upper third is most commonly affected. The entire vaginal wall may be involved in some cases, though this is rare; Johnston noted eleven in his series; Bastelberger (Breisky) records one case and Ziegenspeck two which involved the hymen.

In an upward direction the extension of these cysts is limited by the vaginal reflection, beyond which point they do not appear to pass unless they originate in Gartner's ducts, when they may pass upwards into the broad ligament (Veit's and Watts' cases). Bland Sutton reports a case of double cyst of the lateral vaginal wall of a cow, in which the remains of Gartner's duct could be clearly traced beyond the vaginal reflection into the cervix, but no cystic formation was seen above the vagina.

Most commonly these cysts are oval in shape, with their long axis corresponding to the long axis of the vagina, but they may be rounded and globular and seated transversely across the vagina. The smaller cysts, especially if deeply seated, project so little into the lumen of the vagina that they not uncommonly escape recognition. As a rule, however, if their walls be firm and distended with fluid accumulation, they are distinguished as smooth, oval, or rounded bodies resembling filberts or walnuts, with extremely smooth external surfaces, projecting into and diminishing the calibre of the canal.

Generally they are sessile, firmly embedded in that part of the vaginal wall whence they originated; more rarely they become detached, and carrying with them the vaginal wall on their anterior surface, they descend in the direction of least resistance, and becoming pedunculated protrude beyond the vulva. The pedicle may be the thickness of a finger or larger, whereas a thin, narrow pedicle is rare. This pedunculation of the cyst is commonest in the posterior wall, and arises from a variety of causes: (1) laxity of tissue at its base, (2) pressure from above, (3) prolapse of vaginal wall, (4) large size of cyst.

Though they vary in size, these tumours do not generally attain to large proportions. As a rule, they first come under observation when they have reached the size of a chestnut. They may, however, only be as large as a pea; or, on the other hand, they may have reached the size of a child's head. Such cases have been recorded by J. Veit and Peters. In the latter case, where the tumour presented in the vagina and had to be punctured to allow labour to proceed, the cyst was probably an ovarian and not a true cyst of the vagina. Sinéty says that when they reach the size of a large orange they are first noticed: Hörder gives about an equal size, namely, a closed fist. The largest Matthews Duncan met with in thirty cases was as big as a Tangerine orange, and this would accurately describe the largest I have seen. It occurred in a single woman thirty-six years of age, and when seen by me was found protruding beyond the hymen, which appeared quite intact, so that the cyst must have become prolapsed while still small, and afterwards increased in size owing to friction between the thighs.

The fluid contents are either thin, limpid, and yellow, strongly resembling hydrocele fluid; or viscid, mucoid, and tarry. In the clear serous fluid little or no solid material is found, but in other cases there may be epithelium, pus-cells, granular débris, fat drops, blood, and crystals of cholesterine with albumen. In one case recorded by Veit the contents resembled those of a dermoid cyst of the

ovary, except that there was an absence of teeth and hair.

The various fluids examined by myself have contained nothing special; the darkest fluid was the colour of prune juice, and was slightly viscid. One small cyst which was aspirated contained nearly colourless fluid with no solid contents, while one contained pus and urine.

Generally the rate of growth is very slow, while sometimes cysts remain stationary for years, unless conditions favourable to their increase are present, when we find them rapidly enlarging. These conditions, according to Hörder, are—thickness and elasticity of cyst-wall, pregnancy, excessive coitus, and irritation of the cyst, due either to excessive coitus or friction outside the vulva and inflammatory processes in the vagina. In one case, which came under my care over two years ago, the new growth has remained stationary, so far at least as one can judge by ordinary physical examination. Winckel states that they "grow very slowly, many requiring years to become as large as a hen's egg." Fürst records one which took five years to grow to any appreciable extent; and Tillaux narrates one case in which the existence of a cyst was noted for twenty-two years. Hörder and Auvard mention cases of cysts of the vagina the size of a fist which grew rapidly; but from a study of these growths this rapid increase in size is an exception to the general rule.

As might be expected, the hyperæmia of pregnancy, gradually increasing in intensity during the latter half of the time, is perhaps the most powerful factor in the enlargement of these cysts, and their increase frequently continues after parturition, in some cases slowly, in others rapidly, while in a few rupture occurs and no return takes place.

Cysts of the vagina are most commonly found in people of middle age, but there seems to be no period of life to which they are actually confined. Breisky records a case he saw in 1873 of a cyst of the vagina in a child six weeks old, situated on the anterior vaginal wall close to and pro-

truding beyond the hymen. Winckel records a similar case in a new-born child. The cyst occupied the left lateral and anterior vaginal wall, and was the size of a cherry; it protruded beyond the hymen, part of which it occupied, and by its pressure on the urethra interfered with micturition. Both of these tumours are believed by Breisky to have originated in a remnant of Müller's ducts.

The superficial coverings of these cysts consist of a mucous membrane in all cases; besides this there may be muscular or connective tissue, according as the tumour is superficially or deeply embedded in the surrounding tissues. Very frequently the cyst is covered by tissue exactly resembling the surrounding mucous membrane, or presents a blue mottled appearance, or it may be white and shining like a tense fascia, with delicate red arterioles coursing over its surface. If the cyst protrudes through the vulva its mucous covering becomes thicker, drier, and more opaque, and if covered by more than mucous membrane its walls will undergo changes similar to those found in cases of cystocele or rectocele, and may even become inflamed and show patches of ulceration. It frequently happens that, as a cyst enlarges and becomes tenser, its wall becomes incorporated with the vaginal wall, the constituent parts of which gradually disappear owing to the continued pressure; and finally there results an extremely thin-walled cyst, which appears to be covered by mucous membrane and connective tissue only in its lower or deeper part. When the distension of the sac has proceeded to the point of rupture, the contents may pass into the vagina or urethra, most frequently into the former. This rupture may be spontaneous or traumatic, but in either case the walls may collapse and the cyst disappears; or, what is more frequent, a fistulous opening remains, which allows a re-accumulation of fluid and occasional discharges, which in time become purulent. According to Sinéty this fistulous opening is especially liable to occur when two cysts situated on opposite sides of the vagina become inflamed and ulcerated, and allow their contents to escape into the vagina.

In studying vaginal cysts it is important to have some knowledge of their origin, and for this purpose the fluid contents were carefully examined by earlier observers. More recently, it was thought the internal lining membrane of the cyst would definitely solve this question, and careful microscopical examinations of the sac-wall were made. Unfortunately neither the fluid contents nor the lining epithelium afford us the desired information; and this is not surprising when it is understood that two or more varieties of epithelium may be found lining the same cyst, as the accompanying drawing well illustrates.

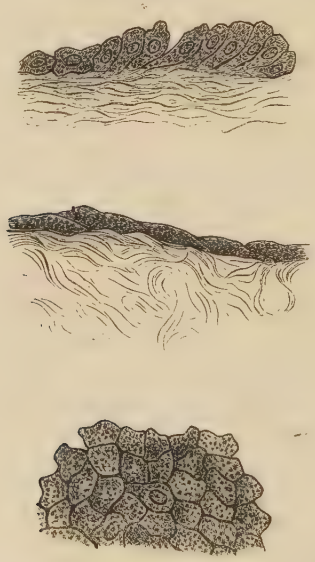

FIG. 1.—Different forms of epithelium lining the interior of the same cyst. (After Lebedeff and Johnston.)

Von Preuschen, in his illustration of a vaginal gland, figures two varieties of epithelium; a low cylindrical type near the orifice, and a true ciliated cylindrical epithelium deeper down (Fig. 3). Graefe and Kaltenbach have both noted two distinct varieties of epithelium lining the same cyst; and Johnston, in recording a case which he believes

originated in Gartner's canal, follows Lebedeff very closely in his description of the epithelial lining.

The most frequent type of epithelium found in the cysts is low cylindrical without cilia, set at right angles to the subjacent tissue, but sometimes placed more obliquely. Besides this variety simple stratified or pavement epithelium is found, while Huguier, Ladreit, Verneuil, and Lebedeff describe cases in which an epithelial lining was wanting. Sinéty states that occasionally multilocular cysts of the vagina are found, with papilliform projections lined with several kinds of epithelium, thus resembling cysts of the

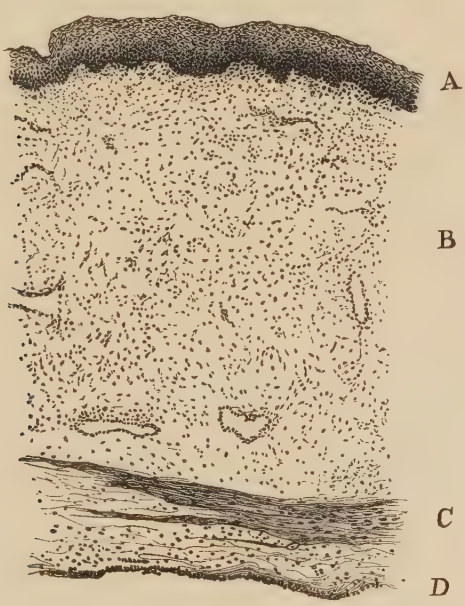

FIG. 2.—Section through cyst-wall. A. Epithelium lining vaginal surface. B. Connective tissue. C. Muscular tissue. D. Epithelium lining cyst (interior).

ovary. Such cysts have been described by Kaltenbach and Reboul, but, so far as I can find, this multilocular variety is rare.

In Fig. 2 is shown the usual type of low columnar

epithelium. It is taken from a cyst removed by me, and illustrates very well the character of the entire cyst-wall from vaginal surface to the inner wall of cyst.

A short digression is necessary in order to study the minute structure of the vagina, especially as regards the vexed question of the presence or absence of glands.

The mucous membrane of the vagina is rugous, and raised into small papillæ by projections of connective tissue from below. The epithelium lining this surface follows the depressions and elevations thoughout the vagina, and consists of several layers. The uppermost consists of flat or large polygonal cells with a central nucleus; deeper down the cells become more rounded, while the deepest layer of all, which rests on a connective-tissue basis, is composed of cylindrical epithelium. In the depression between the ridges this stratification holds good, but is not so marked as elsewhere. Many of the depressions are of considerable depth, and assume the form of crypts lined with stratified epithelium (Fig. 4). Crypts of this depth are not common, and according to my experience are more often found in the lower than the upper portion of the vagina; they are invariably lined with stratified epithelium, and never with columnar.

True vaginal glands have been described by Von Preuschen in an elaborate article. He has studied the subject most carefully, and concludes that vaginal glands occur in two forms: (1) as crypts, from the side of which conglomerate glands, tubular in shape, pass outwards; (2) as simple tube-like depressions with a rounded blind extremity. In each of these varieties he has found ciliated columnar epithelium lining the deeper portions of the glands, with pavement epithelium at or near the open extremity. The accompanying figure (Fig. 3), copied from Von Preuschen, illustrates this, and should be compared with Fig. 4 farther on.

Kleinwächter collected nine cases of vaginal cysts from his clinique, five of which were examined microscopically. The conclusion reached by him was that the vaginal wall

is covered by many layers of pavement epithelium. In the midst of this epithelium were minute depressions resembling tubular glands, but in no case did the lumen reach the periphery or open externally. In all probability these depressions are similar to those observed by Loewenstein,

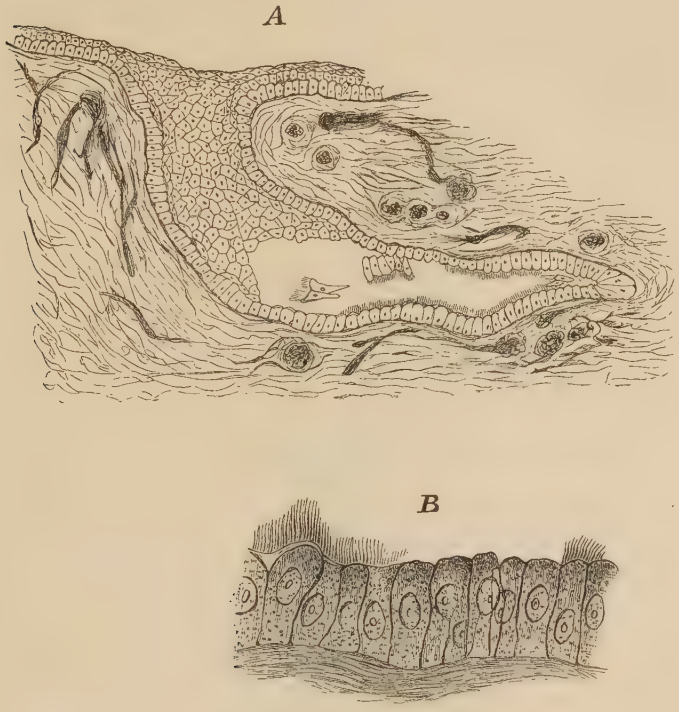

FIG. 3.—A. Vaginal gland. B. Ciliated columnar epithelium from deeper part of gland. (After von Preuschen.)

and are gland-like depressions, the orifices of which have become occluded by masses of epithelial débris. This view is supported by Eppinger, and by a case of Von Preuschen's in which an epithelial mass forming a plug was removed from the upper part of a gland-like cavity.

Amongst others who support the existence of glands in the vagina are Dubois, Heitzman, Henle, Hennig, Johnston, Lebedeff, and Winckel.

On the other hand, however, the existence of true vaginal glands is denied by a number of careful observers, amongst whom may be mentioned Sinéty, Ruge, Eustache, Sappey, and Klein. Breisky is of opinion that the glands described by some authorities, especially Henle, are pathological appearances, though he admits that gland-like crypts of the mucous membrane are common, especially in the region of the vaginal columns, and in this view he is supported by Takahasi.

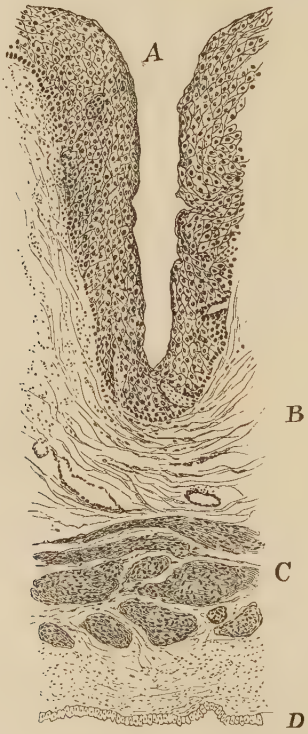

FIG. 4.—A. Crypt lined throughout with flattened epithelium. B. Connective tissue. C. Muscular tissue. D. Low columnar non-ciliated epithelium lining interior cyst-wall.

For my own part, I have hitherto failed to find a true gland of the vagina, though I have searched diligently for

them. I have seen crypts, as in Fig. 4, which it is quite possible under certain pathological conditions may come to resemble glands, and which may even narrow at their outer extremity, and finally become occluded, either by inflammatory processes or by epithelial plugs.

It would be unwise to deny the existence of vaginal glands when observers, such as those already quoted, positively state that they may be found; and we must, therefore, bear in mind that by some the starting-point of these cysts is believed to be a gland, the excretory duct of which becomes closed.

Personally I doubt the glandular theory, and admit the possibility of cyst formation from crypts in a few cases only, and as pathological conditions.

When once they become occluded their gradual distension is carried on by breaking down of the epithelium, and by osmosis from the neighbouring capillaries. They probably never attain to any dimensions and are thin-walled, and generally situated close to the vulvar orifice.

A few cases have been recorded in which the inner surface was devoid of epithelium or endothelium. These are said to arise from œdema, or contusion and effusion of serous fluid or blood into the submucous tissue; but in the case of blood-effusions we should expect the cyst to become hard and finally disappear.

Serous effusions into connective-tissue spaces are considered by Courty and Verneuil to arise when much friction is produced at any point in the vagina, especially in prostitutes, and many of them are bursæ, and are found chiefly in the anterior wall close under the arch of the pubes. Johnston explains them by supposing that the "*tissue vacuoles*" found in the loose submucous connective tissue enlarge and fuse into one cyst under certain influences. The fluid poured into them undergoes retrograde changes, and by the irritation of its pressure causes a distinct sac-wall. If the process has been rapid no epithelial layer will be found, and only an improperly formed investing wall; but if the changes have taken place more gradually there

will be formed a well-marked capsule, and this will take on an inner endothelial layer.

Dr. Handfield Jones has kindly placed some vaginal cysts at my disposal, which he considers to be tumours developed in the meshes of the connective tissue. They were all deeply seated; two of them were in the lower third of the anterior wall, and the third on the latero-posterior wall on a higher level than the external os uteri.

Lapéyre records a case in a married woman twenty years of age. When three months pregnant she first noticed a tumour the size of an apple projecting between the labia majora. The cyst was removed, but no microscopical examination made of its walls. The author is of opinion, however, that the cyst was probably hygromatous, and due to sexual intercourse during the early months of pregnancy; but the evidence in support of this opinion is so slender that it appears to me hardly possible to accept this cause as the true origin of the cyst. It has been pointed out that the growth of these cysts is slow as a rule, and in all probability the cystic growth in this case had existed considerably longer than three months.

Blood effusions into the connective tissue is undoubtedly one source of these tumours. Dr. Cullingworth has recorded a case which appears to me to have originated in this manner after parturition. Auvard has observed a very rapidly growing cyst in a pregnant woman, who imagined labour had commenced, and that the child's head was protruding when the tumour first escaped from the vagina.

Chiucini, Santoni, and Sinéty all regard this mode of origin probable, and Breisky mentions a cyst which was pedunculated like Auvard's. This cystic condition may be maintained by the non-coagulation of the contained blood, by repeated hæmorrhages, or by the contents undergoing suppuration; and thus a vaginal tumour is formed which partakes of all the characteristics of a cyst derived from other sources.*

* Cysts arising in this manner occur almost invariably during pregnancy

In two cases which I examined there was no trace whatever of an epithelial layer covering the interior of the cyst: in one (Dr. Amand Routh's) owing to suppuration of the cyst-wall; in the second (Dr. Edis's) probably owing to faulty methods in hardening or mounting the specimen, though in this case it is only fair to state that the epithelium lining the vaginal aspect of the tumour was in no way destroyed.

It has already been pointed out that the lining epithelium of these cysts may undergo changes due to the pressure exerted by the contained fluid, and that instead of maintaining its original cylindrical or stratified form it may become flattened, so as to resemble endothelium such as is found in a lymph-channel.

Probably many cysts with an endothelial layer owe their existence to dilatations of lymph-channels or lacunæ, as was first pointed out by Klebs, who regarded vaginal cysts, whether superficial or deep, as originating in this manner.

Winckel, though he does not go as far as Klebs, admits that some cysts most probably do arise in this manner, though their number must be few. Certainly we cannot look upon this mode of origin as applicable in every case, since in many the lining epithelium is cylindrical or stratified pavement. Johnston is in favour of this mode of cyst formation, and quotes Hegar and Kaltenbach as authorities who admit the development of them by lymphangiectasis. Schultze records a case in which constant inflammatory processes were evidently the means of causing a cystic growth of this variety. Santoni refers to this mode of origin in his second or accidental class; and Chiucini and Veith uphold the same view, though they regard them as uncommon, and believe that they never reach any considerable size.

When we remember what a rich network of lymphatics surrounds the vagina, and penetrates every layer in its formation, it need not seem surprising that occasionally a

or labour when the vaginal hyperæmia is great, and the meshes of the tissues are loosened out.

cystic tumour should be formed by the gradual dilatation of lymph-vessels, especially if much irritation exists to set up inflammatory changes, and possibly Lapéyre's case, already referred to, may have been of this kind, pregnancy and coitus acting as irritants, and causing rapid growth in a pre-existing tumour.

To Freund is due the credit of having first described vaginal cysts as originating in a Müller's duct, which, instead of uniting with its fellow early in intra-uterine life, has failed to coalesce in some portion of the tube, and has remained distinct. Such cysts are deeply seated, and have thick walls consisting of epithelium, connective tissue, and muscular tissue, while the internal lining of the cyst-wall is cylindrical or pavement epithelium. They are placed in the long axis of the vagina, either on the lateral, anterior, or posterior wall, sometimes on all three in a spiral manner. This spiral arrangement is accounted for, according to Winckel, by the twisting of each Müllerian duct round the Wolffian canals. The cysts may be single or multiple, and never extend beyond the vault of the vagina into the broad ligament. Freund has observed that in this variety of cyst a uterus unicornis is occasionally met with.

This mode of origin is by no means improbable when we consider that instances of double vagina and double uterus have been somewhat frequently recorded, and Breisky instances several cases which in all likelihood originated thus, amongst them two congenital cysts which were found in children a few weeks old.

Winckel also gives details of two cases of this nature which he examined. The limiting wall was composed of the same layers as are found in the vagina, while the lining epithelium in one cyst was cylindrical, and in the other consisted of slightly stratified pavement epithelium. Kleinwächter's fourth case, already alluded to, was of this nature, and Breisky considers Cullingworth's blood-cyst and Graefe's case of multiple cysts as examples of vaginal cysts developing from a remnant of Müller's duct. Finally, it must be noted that Graefe considers it possible for cysts

to develope from Müller's ducts and Gartner's canals at the same time, especially if several cysts with thick walls be present; and in support of this theory he advances Case IX in his series, where, according to him, two cysts developed from Gartner's and the third from a rudiment of Müller's duct.

Deep-seated cysts with thick walls may also originate in an embryonic structure other than that just discussed, and the difficulty in distinguishing between the two is in many cases extremely great.

In 1867 T. Veit first called attention to the fact that deep-seated cysts placed high up in the vagina might have their origin in the persistent remains of Wolff's or Gartner's ducts, and since that year numerous observations have strengthened this opinion. As, however, their existence in the adult female has been denied, it will be advisable to study these embryonic structures shortly.

According to Kolliker, whose description I shall chiefly follow, these ducts appear as the first organs of the generative system. They are seen as two solid columns of cells, one on each side, starting opposite the fourth or fifth protovertebra, and passing backwards to the last protovertebra. In the chick they are first seen at the end of the second day, and in rabbits about the eighth or ninth day. These columns soon have a cavity formed in their centre, and by the end of the eleventh day they have opened into the uro-genital sinus as distinct tubes. They are found lying first of all in front and to one side of the Müllerian ducts, which by a spiral movement come to lie to the one side, then in front, and finally behind the Wolffian ducts. In the male this duct continues to increase in size, and finally plays an important part as the vas deferens. In the human female, however, it appears to be functionless, and in the majority of cases atrophies, especially in its lower portion, though the remains of its upper part can be seen in the parovarium. In the cow and sow they persist as Gartner's ducts, and in the former animal they are frequently well developed. In the female when these ducts persist they

are seen to pass from the parovarium into the lateral walls of the uterus, and thence downwards in the structure of the vaginal wall, where they become lost.

By some the two glands opening on each side of the floor of the urethra, first described by Skene, are regarded as the lower terminations of Gartner's ducts; and though this termination is denied by many authorities, Bland Sutton upholds this view. He says that "it is easy to see that, although Gartner's duct is originally continuous with Skene's tubes, the connection may be disturbed, giving rise to a distinct gland."

The persistence of these ducts in certain animals is now fully recognised, but their presence in women is still doubtful, and requires further investigation. Kölliker has found them as two fine tubules in the antero-lateral walls of the uterus, but has failed to see them in the vagina. He has also seen distinct remains of them in the broad ligament shortly before they pass into the uterine wall. Biegel has noted the existence of two tubules in a female fœtus, which he regards as Gartner's ducts. They were lined with epithelium, and situated in the same part of the uterine wall as Kölliker's tubes.

Fischel has described a single duct he found in the vagina of a newly born child, which he maintains is one of these tubes, and Giegel has also seen them. In 1882, Kocks of Bonn declared that in 80 per cent. of adult females the remains of these ducts are to be found as two small tubules opening just posterior to the meatus urinarius. Though small and narrow in childhood they increase in size in the adult, and are frequently absent in old women. Garrigues quotes a Russian observer, Wassilieff, who upholds Kocks with regard to these tubular formations. On the other hand, Dohrn, who has studied this question for years, joins issue with those observers who regard the persistence of Gartner's ducts as usual, and denies altogether their patency at the lower end of the vagina. His observations have led him to conclude that in a fœtus of four to five months these canals may be found penetrating the

uterine substance at a point which later on corresponds to the internal os, and thence they pass downwards into the vagina, where all trace of them is lost. The canal in its uterine portion is composed of a layer of low cylindrical cells lying on a firm fibrous connective-tissue basis, the epithelial layer frequently being separated from its base. The canal is of various calibres, but dwindles as it passes downwards, until it is represented by a fibrous or muscular band merely, and finally disappears entirely. The conclusions reached by Rieder in 1884 bear out those of Dohrn in many respects, though he traces them lower down to the mid-urethral level, and thinks they are patent in the adult female more frequently than Dohrn admits. Coblenz has failed to find any trace of these canals in the broad ligament, uterus, or vagina in the adult human female. According to him, the excretory duct of the Wolffian body is entirely obliterated except in a few cases of fœtal monstrosities, when it may be seen entering the lateral wall of the uterus, passing down the vaginal walls to open unobstructed close to the clitoris. Sinéty, though he admits the patency of these canals in certain animals and the probability that vaginal cysts in these animals originate in the Wolffian ducts, refuses to accept this theory as being applicable to women. I have dwelt at length on the persistence or otherwise of these canals, because it is important to know whether we have sufficient grounds for believing in the origin of some vaginal cysts from this source; and I think from the evidence brought forward we may safely regard the persistence of Gartner's ducts as a certainty in occasional instances, and may also fairly consider that under certain conditions these ducts become dilated, and give rise to cystic tumours which project into the vagina. Cysts originating thus may be single, as described by Veit and Reboul; or multiple, as in Johnston's case, where four cysts were ranged one above the other. They are usually described as being situated on the lateral or antero-lateral walls, their long axis corresponding with that of the vagina. But it must be remembered that, though they originally spring from the side, as

they increase in size they are liable to encroach on other parts of the vagina, and may eventually come to cover one wall entirely, especially if in addition to increase in size there is any degree of dragging or prolapse. This fact should be kept in view by those who, like Takahasi, reject the canals of Gartner as a starting-point of these cysts, on the ground that they are found most frequently on the anterior or posterior walls, and seldom or never on the lateral. It is admittedly difficult to distinguish these cysts from those originating in a rudiment of Müller's duct, though, as might be expected, the walls are not usually so thick nor the papillæ so marked as in the latter variety. In this class we may find a prolongation of the cyst beyond the vaginal fornix into the broad ligament (Veit, Watts). The epithelium investing the inner wall of these growths has been variously described, and bears out what has already been said with regard to the difficulty of distinguishing the point of origin of these tumours. Veit and Watts each describe the epithelial investment in the cases just alluded to as pavement; Winckel, Richelot, Reboul, and others have found the cylindrical variety, while Johnston describes and figures columnar and pavement cells in different sections of the same cyst (Fig. 1). This diversity of epithelial lining is probably effected by the pressure of the fluid contents, and has been referred to already.

Another class of cysts arises from urethral glands or diverticula. These, though not true vaginal cysts, in many instances project into the lumen of the vagina, and to all intents and purposes may be regarded as cysts of that canal.

Huguier was the first, I believe, to establish the connection between certain cystic growths of the vagina and urethral glands, and Von Preuschen has described a cystic tumour which projected into the vagina and opened, by a minute orifice, into the urethra. Most of these tumours are small, no larger than a walnut, though I have seen one under the care of my colleague, Dr. Amand Routh, which was considerably larger. That they are of considerable rarity is

evident from the fact that Winckel found but one true urethral cyst out of a total of nearly 600 autopsies.

Urethral diverticula are also a source of these tumours. Breisky mentions a case of this kind which came under his notice. At the first examination a sound could be passed into the sac without difficulty ; but at an examination made some months later there was a cystic swelling projecting into the vagina with no urethral opening. Emmet has also noted sac-like urethral dilatations containing fœtid urine, but he makes no mention of the possibility of the entrance to this diverticulum becoming narrowed or occluded. Dr. Amand Routh in 1890 contributed a valuable article on the subject of "Urethral Diverticula" to the 'Transactions' of this Society. He relates the history of three cases which he has seen and enters most fully into their etiology and pathology, and I must refer those interested in this part of the subject to his original paper for more precise details than I can enter into here. The conclusions reached by him were that urethral diverticula arose: (1) From the closure of ducts of pre-existing urethal glands, retention cysts resulting. Suppuration and ulceration into the urethra by a small, often valvular, hole follows, and the inflammation is kept up by urine trickling into the sac at each act of micturition. (2) Blood cysts which have passed through similar changes. (3) The formation of pseudo-cysts by injury to the urethral floor during labour or instrumentation.

Before leaving the pathology of these cysts we must note that Takahasi traces some vaginal cysts to circumscribed collections of cells in the vaginal submucous tissue, which undergo peculiar retrograde changes in the centre and, breaking down, leave cystic spaces which slowly enlarge. Johnstone quotes Sinéty as his authority for saying that some vaginal cysts may arise from myxomata, but I have been unable to find the passage in Sinéty's article.

Hydatid cysts growing in the perivaginal tissues may project into the lumen and form cystic tumours there. Porak describes a case of this kind ; Breisky also mentions

these tumours, and quotes Schatz, Paul, and others as having observed them. They are, however, not true vaginal cysts and deserve no more than a mere mention. With regard to the etiology of these cysts there is little to be said. Courty's supposition that they are due to friction is hardly borne out by facts, and Huguier's suggestion that pregnancy and parturition play an important part in their causation only holds good in those cases where pregnancy has existed, as in Cullingworth's, Auvard's, and Lapéyre's cases. Inflammation of the mucous membrane of the vagina will bring about changes which will allow cystic formations to occur in connection with a crypt, but these cases, I believe, must be unusual Traumatism will account for some tumours, especially when hæmorrhage has occurred into the vaginal tissues. Inflammatory conditions of the urethra, ending in dilatation and closure of urethral glands or lacunæ, are to be reckoned as another source of origin; but when we carefully consider the history of each case and search for a cause, we are frequently baffled in our endeavours, as the real factor giving rise to the growth, and its first recognition by the patient or physician, may be separated by such a length of time that only an approximate guess at the truth can be made.

Cysts of the vagina cause little or no disturbance and, therefore, occasion no symptoms as long as they remain small; as they grow their increase is so gradual that what symptoms do arise appear very slowly. Indeed, as a rule, the patient presents herself for examination for some cause quite foreign to any cystic formation, and is quite ignorant of any such growth.

When they become pedunculated, or are situated low down on the vaginal wall and protrude from the vulva, they attract attention by the inconvenience they cause or by a sensation of dragging or bearing down. If the cyst or neighbouring vaginal wall has become inflamed, pain and tenderness is often complained of, accompanied by leucorrhœa or blood-tinged discharge. The tumour may interfere with natural functions, as micturition and defæcation, coitus and

labour. Micturition may become frequent and painful, as in Routh's cases, or may be seriously impeded as in Veit's case. Labour may be obstructed and unable to proceed until the cyst has been emptied, as in Peters and Lapéyre's cases. On the other hand, Reboul's case, occurring in a woman who had known of the existence of two large cysts for twenty years of married life, and which had never caused any inconvenience, illustrates well how few symptoms these growths may give rise to. Blood-cysts of traumatic origin naturally occasion considerable disturbance at the time of the injury, as local pain and sudden fainting; but this soon subsides unless fresh effusions of blood occur or suppuration is set up.

It is only when cysts of the vagina are small that they are liable to escape recognition; when they are larger their diagnosis is usually easy, and should be made correctly.

Most frequently a cyst is mistaken for a urethrocele, a cystocele, or a rectocele; but the diagnosis is easily made if a catheter or bladder sound be passed into the urethra or bladder, and a careful examination made; while, to distinguish a rectocele, a digital examination of the rectum and vagina will soon clear up any doubt. The smooth, shining appearance of the cyst is said to distinguish it from the thickened and rugose condition met with in prolapse of the bladder or urethra. This will only hold good in a few instances where the cyst-wall is thin and tense, and cannot be depended on if the cyst be a deeply seated one which has become prolapsed.

Cysts of the glands of Bartholin have been confounded with cysts of the vagina. They may be differentiated by the fact that the former are found as cystic growths within the labia majora, whereas cysts of the vagina never occur in the substance of these parts. From hæmatocele, hæmatoma, and encysted serous metritis they are distinguished by the history, the pain, the irregular surrounding infiltration or matting of the parts.

With pelvic abscesses, and cystic conditions of the tubes or ovaries, they are not readily confounded, except in

those rare instances where the vaginal cyst is continued up into the broad ligament, when the globe-like prolongation parallel with the vaginal wall ought to suggest the nature of the case.

Finally, it is most important to distinguish cysts of the vagina from vaginal enterocele, especially when the hernia escapes through the anterior wall. The same rules that are observed in the diagnosis of hernia in other parts of the body are applicable here; the impulse on coughing, the doughiness, the power of reduction of the hernia, are all present, and must be distinguished from the tense, elastic, irreducible cyst, which yields no impulse on coughing, but is carried downwards with the rest of the vaginal wall and pelvic tissues.

The treatment of these cysts is generally easy and satisfactory if we are contented not to attempt too much.

Small cysts, or even growths as large as a chestnut, need not be interfered with unless they are obviously the cause of symptoms, or interfere with physiological functions, in which case the sooner they are removed the better.

When surgical measures are definitely decided upon, one of the following methods of treatment may be adopted:

(1) Simple aspiration of the cyst. This method is easy and often satisfactory in small cysts situated superficially; but it is open to the objection that the puncture often closes, and a reaccumulation of the cystic contents takes place, or inflammation may be caused.

2. Aspiration with injection of some irritating fluid, as tincture of iodine, carbolic acid, lunar caustic, &c. Cures are effected by this means, but it is not infallible, and is often the starting point of intense inflammatory processes.

3 and 4. Incision, and incision followed by injections or applications to the cyst-wall. These two methods are practically the same as 1 and 2, but are slightly superior, in that the incised opening is less liable to close.

5. Excision of an oval or rounded piece of the cyst-wall. In my opinion this method is the easiest, safest, and most reliable of all operative measures. It is applicable alike to

all cysts, whether superficial or deep, large or small. The extent of cyst-wall excised must depend upon the size of the cyst. If hæmorrhage from a thick-walled tumour takes place, the bleeding point can easily be secured. The lining membrane of the sac-wall left behind gradually disappears, and becomes indistinguishable from that lining the rest of the vagina.

Schroeder has extended this plan by removing the entire cyst-wall projecting into the vagina, and stitching the vaginal mucous membrane to that lining the cyst.

6. Enucleation. This is often a difficult proceeding, especially if the cyst wall be thin or the cyst be deeply seated. There is generally free hæmorrhage which masks the parts and so allows rupture of the cyst. The enucleation must then be abandoned and a simpler method adopted. In one case at which I assisted enucleation had to be abandoned owing to the great depth to which the cyst burrowed. If it is successfully accomplished, the cavity may be packed with carbolised lint and left to granulate up, or the edges may be brought together and thorough drainage provided. This method always appears to me far too serious and dangerous for the class of cases which we have to deal with, and should be classed as meddlesome gynæcology.

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OCTOBER 7TH, 1891.

J. WATT BLACK, M.D., President, in the Chair.

Present—47 Fellows and 4 Visitors.

Books were presented by Dr. Champneys, Dr. Sebillote, the Clinical Society of London, the Council of University College, and the New York Academy of Medicine.

Edward Arthur Burgess, M.R.C.S. (Cricklewood), and George John Eady, M.D.Brux., were admitted Fellows of the Society.

W. Ayton Gostling, M.D., B.S.Lond. (Worthing), and Alfred Edgar Mayner, M.D.Montreal (Kingston, Jamaica), were declared admitted.

The following gentlemen were elected Fellows of the Society :—Herbert Markant Page, M.D.Brux. (Redditch) ; and Henry Sharland Pope, M.B., B.C.Cantab.

The following gentlemen were proposed for election :— William Henry Gimblett, L.R.C.P.I. ; Robert Colgate Holman, M.R.C.S. (Midhurst) ; James Henry Targett, M.B., B.S.Lond., F.R.C.S. ; and Bertram C. A. Windle, M.A., M.D., B.Ch.Dublin (Birmingham).

A DOUBLE MONSTER.

By Charles Wenyon, M.D., of Canton (per W. S. Playfair, M.D.).

A Chinese married woman, 32 years of age, was admitted to the Wesleyan Missionary Society's hospital at Fatsham, South China, on February 18th of the present year. She stated that she was in the eighth month of her sixth pregnancy. The previous pregnancies had been normal in every respect. For the past two months she had suffered from pain in the abdomen which had steadily increased in severity, and was now so bad that sleep for more than a few minutes at a time was quite impossible. The unusual size and tenseness of the abdomen, the very distinct fluctuation, and the extreme difficulty of distinguishing by palpation the fœtal movements showed that the woman was suffering from hydramnios. The pains, to the woman herself and to our own observation, closely resembled those of commencing labour. They were but slightly relieved by such sedatives as we thought fit to give, but the woman preferred, in spite of her sufferings, to wait for spontaneous parturition.

On Friday, March 6th, at about 11 p.m., the membranes ruptured, and two to three gallons of fluid were discharged. On Saturday, at 10 a.m., I could barely reach with the tip of the finger what proved to be a presenting occiput. At 4 p.m. the head was fairly within the brim of the pelvis, but here it seemed to be arrested, and, as the sufferings of the woman were severe, I applied the forceps. They locked easily enough, but would not close, and this led me to suspect the abnormal nature of the case. I removed the forceps, and on further examination was able to make out a face on either side

of the presenting head. Another dose of ergot was administered, two hours later the head was at the vulva, and with some manipulation the woman was delivered of the stillborn monocephalic bifacial twin monster represented in the accompanying woodcut. The heads were united frontally, and the fusion was continued through the thorax and abdomen as far down as the

umbilicus; below this were the perfectly normal pelves and lower extremities of female twins. The drawing shows the two lateral aspects of the monster, with its two faces, one on either side of the double head. Each face was perfect, and the whole head was fairly symmetrical, the distortion shown in the woodcut being probably due to unequal compression in process of delivery. There

were two complete pairs of arms. The placenta and cord were single. The weight of the fœtus was six and a half pounds.

The specimen is preserved in the Teratological Collection, Museum of the Royal College of Surgeons.

Dr. Playfair remarked that this specimen was peculiarly interesting, as it was an example of that rare variety of conjoined twins in which the bodies were separate and the heads joined. In a paper which he had published in vol. viii of the 'Transactions,' "On the Mechanism and Management of Delivery in Cases of Double Monstrosity," he had noted all the cases that he could collect in which the labour had been described. He was only able to find two of this particular class. One happened in the last century, one early in the present. One of these cases gave rise to great difficulty; the labour in the other was easy. In his book on midwifery he had remarked, "We should scarcely anticipate much difficulty in the birth of monsters of this type: for if the head presented, and would not pass, we should naturally perform craniotomy; and if the bodies came first, the delivery of the monstrous head could readily be accomplished by perforation."

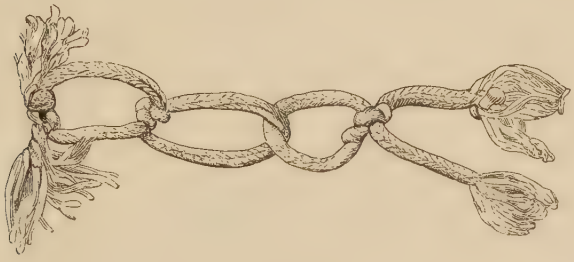
The criticism which he would make on this case was that it was a pity craniotomy had not been performed as soon as the nature of the obstruction had been made out, as it had been when the head was still at the pelvic brim. It clearly would have been less dangerous to the maternal soft parts to lessen the bulk of the head than to drag it through the pelvis with the forceps. Fortunately the labour was premature, otherwise delivery by this means would probably have been impracticable.

LIGATURE DISCHARGED AFTER AN ABDOMINAL SECTION.

By W. S. Playfair, M.D.

Dr. Playfair exhibited a knotted ligature, which had been applied in a case in which the uterine appendages were removed. Eleven months ago the patient was

admitted into King's College Hospital, with a suppurating sinus at the abdominal incision, which was discharging fœtid pus profusely. An unsuccessful attempt was made to form a counter opening through the vagina. Subsequently a drainage-tube was inserted, and the abscess-sac daily washed out with antiseptic lotions. The ligature exhibited had come away entangled in the end of the tube. It was interesting to note that no attempt at absorption of the silk had taken place, nor had it become encapsuled, probably on account of the size and



Ligature discharged through abdominal wound.

thickness of the silk. The discharge lessened rapidly on the escape of the ligature.

Dr. Boxall said that the patient, a young woman some years married, but without family, had been under his care suffering from long-continued and persistent pelvic pain. For two years previously she had suffered from abscesses of the labium. The uterus was fixed in a retroverted position by inflammatory bands, and the operation was undertaken in order to free the organs from adhesions. After being in the hospital for a month she developed numerous boils, and her general condition was so unsuitable for operation that it was deemed advisable to send her to the sea-side for a time. She returned improved in general health, and the operation was performed on November 22nd, 1890. In addition to adhesions fixing the uterus in a retroverted position both ovaries and tubes were found in an advanced stage of fibrosis, and so densely adherent that the right ovary was torn in the endeavour to free it; the left contained a blood-cyst. Both appendages were therefore removed. Dr. Boxall, who objected

to the use of thick ligatures, unfortunately had no thinner silk at hand when the operation was performed. For a fortnight the patient did remarkably well. The sutures were removed on November 30th, the wound being then quite healed. The temperature suddenly rose with a rigor on December 6th, and suppuration was discovered in the track of one of the sutures. Two days later the temperature was again normal, and remained so until the 18th, when a sudden rise again occurred, and erysipelas supervened. Part of the cicatrix broke down, leaving a superficial wound. The erysipelas lasted a fortnight. When the patient left the hospital on January 21st the temperature had been normal for more than a week, and the wound, then all but healed, soon after completely closed. The patient was some months subsequently operated upon for fistula in ano, and the wound in that case failed to heal. When she again came under observation, on August 2nd, she gave indications of an abscess in the pelvis which for some time had been discharging *per rectum*. The abdominal cicatrix, after having remained intact for five months, had again broken down in its middle third, and was discharging freely from a sinus which led down into the pelvis. A drainage-tube was inserted and washed out frequently. The patient at that time was unwilling to come into hospital for further treatment. Under the circumstances of the case it is a matter of no great wonder that suppuration took place in the pelvis, and that at least one of the ligatures came away.

Mr. Alban Doran regretted that any Fellow of the Society should be compelled to employ so stout a ligature for tying a pedicle. He had seen very bad results follow the use of thick silks. The pedicle was, under favourable circumstances, preserved from sloughing and suppurative inflammation by the bulging of the tissues over each side of the groove formed by the ligature. In this way the strangulated distal portion of the stump was brought into close contact with the unstrangulated proximal part. Plastic lymph was thrown out, conveying nutrition to the distal portion of the stump. It was obvious that this process of approximation was most favoured by the use of as fine a ligature as was consistent with safety. Mr. Doran had found that a fine silk, brought round a second time in the groove after ligature, was preferable to a silk of twice the thickness brought round only once. Lastly, the process of disintegration of the silk fibres by granulation tissue, the normal manner in which the ligature was destroyed, must be favoured by the thinness and obstructed by the thickness of the ligature silk.

Dr. Herman said that information as to the conditions under which suppurating sinuses, continuing to discharge until a ligature had come away, occurred after laparotomy was much needed. It was well known to be a frequent event. A patient

who submitted to removal of the uterine appendages incurred the risk of this inconvenience, even if she were cured of her disease. It was to be regretted that some operators who published long lists of "successful" cases gave no hint as to the occurrence of this and other troubles which followed operations which were successful so far as removal of diseased parts was concerned.

TWO DERMOID CYSTS.

By T. C. Hayes, M.D.

LARGE SOFT POLYPUS.

By T. C. Hayes, M.D.

INFLUENCE OF PURPURA HÆMORRHAGICA UPON MENSTRUATION AND PREGNANCY.

By John Phillips, M.A., M.D.Cantab., M.R.C.P.,

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(Received February 14th, 1891.)

(*Abstract.*)

The author, after showing the difficulty in defining the subject, gives the reasons for the more common occurrence of the affection in females than males. He considers the subject under two headings:—(1) The influence of purpura hæmorrhagica during menstruation and the non-pregnant condition. (2) Its influence on the pregnant condition.

1. Under the first heading a typical case is related, in which menstruation was seriously affected, and death ensued: a temperature chart (Case 1) is appended. Two other cases of a somewhat different nature, but not fatal (Puech, Wetherill), are also detailed. A few remarks on other varieties are made, and various conclusions drawn.

2. Under the second heading six cases are recorded, all fatal; and another under the author's care which recovered; Cases 6 and 10 are accompanied by temperature charts.

The first three cases (Author, Puech, and Kezmarszky) are grouped and discussed together for reasons given; the next four, Dohrn (2) and Wiener (2), are similarly treated. The first three are considered as cases of purpura hæmorrhagica very little modified by the pregnant condition; the last four present certain peculiarities in the appearance of the rash and general symptoms.

The hæmorrhagic exanthemata (measles, scarlatina, and small-pox) are shown to simulate closely the disease under consideration, but the differences existing are pointed out.

The part played by septicæmia or septic influence, when purpura hæmorrhagica complicates pregnancy, is discussed.

The following conclusions are drawn:

1. That the prognosis in these cases is extremely grave, the large majority proving very rapidly fatal.

2. That death may be due to post-partum hæmorrhage or some condition allied to septicæmia.

3. That abortion or premature labour inevitably takes place during the course of the disease.

4. That certain modifications of the rash, which are not observed in the non-puerperal condition, may appear.

5. That the disease is not hereditary, but is a fertile cause of intra-uterine death.

PURPURA hæmorrhagica in general is of comparatively rare occurrence, and as a complication of female physiological functions even more so. Having met with two undoubted cases of the disorder, I have collected others from the writings of various observers, and by comparing the symptoms and circumstances arising in each case have endeavoured to add to our somewhat scanty knowledge of its pathology and ætiology, and more especially to indicate its influence upon the female during menstruation and pregnancy.

In approaching a subject such as this our first and great difficulty lies evidently in giving an accurate definition of purpura hæmorrhagica. Immermann,* the great authority on this disease, considers it to be an acquired and transitional diathesis, which suddenly and unexpectedly, and always sporadically, occurs in persons who have been apparently quite healthy, and which cannot be traced to family taint or history as in hæmophilia.

* Ziemssen's 'Handbuch der speciellen Pathologie u. Therapie,' 1879, Bd. xiii, s. 741.

It is a well-recognised fact, I think, that women are much more frequently attacked with spontaneous hæmorrhages than men. Indeed, they are natural phenomena with them at every menstrual period, and when the catamenia appear or are due there seems to be a greater tendency everywhere in the system to hæmorrhage from very slight causes.

There appears to be a decided sympathy between the utero-ovarian and the tegumentary systems, and hence it is not surprising that any deficiency or irregularity of the menstrual flow should be accompanied by some skin lesion; in some cases this plays the part of supplementing the already existing discharge, in others it acts purely and simply as a substitute for that phenomenon.

There is among some women with amenorrhœa or irregular menstruation a disposition manifested to erysipelas of the face and erythema nodosum, while cases of purpura simplex are not uncommon; these latter consist in the onset of a purpuric rash at the menstrual epochs, but without hæmorrhage elsewhere, and may be classed under the name of "menstrual purpura." Now purpura hæmorrhagica very frequently commences as purpura simplex, which later develops into the more formidable disease in consequence of the accession of extensive cutaneous hæmorrhages in the form of extravasations, internal bleeding at various sites and in different organs. Purpura simplex and purpura hæmorrhagica are probably only different degrees of the same hæmorrhagic disorder. It is, however, to the severer type of this disease that I wish to call attention, where there is, in addition to the cutaneous lesion, considerable loss of blood from the mouth, nose, kidneys, rectum, and vagina.

It seems most suitable to consider this subject under two headings:

1. The influence of purpura hæmorrhagica upon the female during menstruation and the non-pregnant condition.

2. Its influence on the pregnant condition.

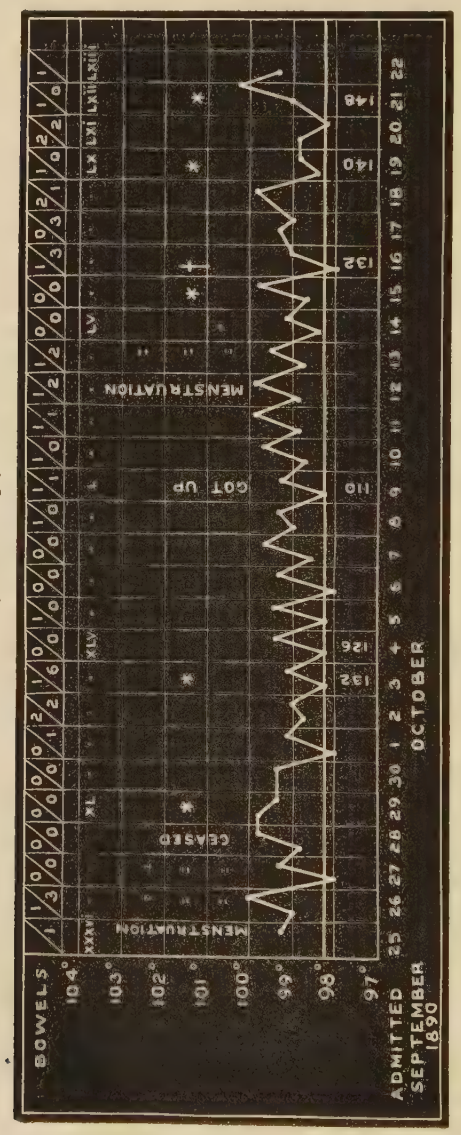
Under Class 1 I have given three typical cases, one having come under my own immediate observation; several others have been *described* as purpura hæmorrhagica, but on going into the cases I have found that their claims did not rest on sufficient grounds, or that they were exactly similar to those I have detailed.

Case 1 (John Phillips).—The patient, æt. 26, was married, and with one child born two years ago. The labour and puerperium had been quite normal. She was a hard-working woman, eating little meat, but much vegetable food. There was no family history of "bleeders" for two generations back, no history of rheumatism. Since her labour the periods have been quite regular, lasting four days, and not copious in amount, three diapers being used in twenty-four hours. Her health had been excellent up to nine weeks before her death, at which time her usual monthly illness appeared; the amount lost was very profuse and accompanied by the passage of large clots, without any pain, however, and lasted eight days. Fourteen days after the cessation of the flow purpuric patches appeared on her arms and legs, and menstruation commenced again, being even more profuse than before. She became very weak and gave up work. A week after the purpuric patches showed themselves the gums began to bleed, and continued to do so up to the time of her death to a greater or less extent. There were five attacks of severe epistaxis, and these seemed to be the ultimate cause of death. She died during the third menstrual period, which was as profuse as the second. There was no hæmatemesis, hæmaturia, or albuminuria throughout the illness.

The temperature varied throughout her illness, between $98\frac{2}{5}^{\circ}$ in the morning and 100° at night, the pulse sometimes reaching 140 per minute, especially after a severe hæmorrhage (see Chart, Case 1).

The post-mortem showed small, subendothelial, petechial hæmorrhages in the pericardium and the pleura; the

CASE 1 (John Phillips).



* * * * * Severe attacks of epistaxis. † Large clots of blood coughed up.

lungs were œdematous. The *stomach* was the seat of a diffuse submucous hæmorrhage near the œsophageal end. The uterus contained a large intra-uterine blood-clot attached to the fundus and protruding through the external os uteri; in the right ovary, at the site of the corpus luteum, there was a hæmorrhagic infarct, the size of a marble. The specimen was exhibited at the January meeting of this Society, 1891.

Case 2 (Puech).*—The patient was married, and 21 years of age. Catamenia appeared at thirteen, lasting three days, and unaccompanied by pain or passage of clots. After the birth of her only child the amount and character of the loss was the same, although there was severe post-partum hæmorrhage after her labour.

A year after her confinement, after enduring much mental worry, she was suddenly seized with headache and palpitation, followed in a few days by the appearance of purple spots on her limbs. Ten days after the first onset of headache the catamenia showed themselves, and were normal in every way. The next period came at its proper time, and for three days was normal in quantity, but soon became excessive and accompanied by passage of clots. On the fourth day she fainted. Hæmorrhage from the bowel came on, and the uterine hæmorrhage continued. The rash remained more or less marked. The gums were tender but did not bleed. After two months' illness the patient made a slow recovery. Unfortunately in this case no notes have been recorded either of the temperature or of the examination of the blood.

Case 3 (Wetherill).†—The patient was 44 years of age, with three children; her labours had been quite normal; she had never had menorrhagia or metrorrhagia. There was no history of hæmophilia to be obtained.

* 'Annales de Gynécologie,' "Du purpura hæmorrhagica," 1881, tome xvi, pp. 266—268.

† 'Philadelphia Med. Times,' 1884–5, p. 427.

Three months previous to the attack she had had to work excessively hard. It commenced by the appearance of small purple petechiæ over the trunk, neck, and limbs, but preceded by no prodromata. The following day bleeding from the tongue, gums, and buccal mucous membrane came on, but there was no epistaxis. Seven days after the first appearance of the petechiæ a larger crop came out, fifty in number, and purple throughout in colour: then copious menorrhagia ensued, lasting seven days, being accompanied by hæmaturia (catheter) and melæna. The uterine hæmorrhage was so severe that plugging was necessary twice, the second time with iron cotton-wool. There was a temperature varying between 99° and 102° F. for six days, which was looked upon as the fever of anæmia or "privation." The patient recovered, and suffered no relapse.

Wetherill observed some interesting points during the progress of the disease. It was noticed that as the bleeding went on the solid constituents of the blood were diminished, the white corpuscles were relatively increased in number, and as the blood became thinner the red corpuscles appeared to imbibe the serum, swelling, and to a great extent losing their biconcave form. From the initial hæmorrhage the blood was non-coagulable, and was very poor in fibrin; on the cessation of the attack it commenced to coagulate again.

These three cases illustrate the influence the disease has upon menstruation; many somewhat similar cases are recorded. Dr. F. H. Thompson* relates one in which there was bleeding from almost every organ in the body, but no *uterine* hæmorrhage; possibly the fact of her age, forty-seven years, was sufficient to account for this, utero-ovarian activity being on the wane. A case under the care of Dr. Elliott† only exhibited two or three purpuric spots, but the patient had profuse epistaxis, and finally severe menorrhagia necessitated vaginal

* 'Lancet,' 1875, vol. ii, p. 581.

† Ibid., p. 687.

plugging: death ensued on a return of this complication.

A depressing cause appeared to be present in all the three cases, namely, excessively hard work (1 and 3) and much mental worry (2). In Case 1 the disease apparently began with the profuse menstrual excess, and the rash did not appear until the twenty-second day of the disease; in the second case it appeared "a few days" after the onset of the palpitation and headache, while in Case 3 the rash ushered in the disease.

Purpura hæmorrhagica may act on the uterine mucous membrane during the intermenstrual period as well as during the flow; this is much less common, however, and should always be considered as a clear indication of an extremely grave condition. All the three cases above mentioned were attacked during menstruation, or the alteration in the quantity of the flow indicated the pre-existence of the disease. It has been asserted by Puech* that purpura hæmorrhagica can suppress the menstrual flow, hæmorrhage occurring in various other parts of the body as compensatory; he gives one illustration of this.

Although when purpura hæmorrhagica attacks a woman it rarely fails to alter the amount of menstrual flow, yet this loss varies much in proportion to the losses from other parts of the body. In Case 1, for instance, although menorrhagia was excessive, death was directly the result of epistaxis. Elliott's case succumbed to the uterine hæmorrhage, while in Cases 2 and 3 this was also the direction in which treatment was most necessary, and fortunately a fatal issue was averted in both.

Under Class 2 I have found six cases recorded, which with the one related by myself make seven in all. Many points will be probably found in these cases which may be discussed as to the rectitude of classing them under the heading of purpura hæmorrhagica, but I have endeavoured to anticipate such criticism in the forthcoming pages.

* Loc. cit.

Six out of the seven cases are extracted from foreign literature, and in transcribing them I have entered into as much detail as is possible in a paper of this description, because some of the facts here noted may be looked upon from different points of view, and I wished to avoid drawing general conclusions without giving accurate reasons for so doing.

In Cases 6 and 10 I have constructed temperature charts, which are not in the original papers, but are made up from the context. Unfortunately a post-mortem was only obtained in Case 6, and we are deprived of much confirmatory evidence in consequence. It will be observed that six out of the seven cases were fatal; another, related by Puech,* was also fatal, but I have not included it in the present list owing to scantiness of details.

Case 4 (John Phillips).—The patient was aged 32, and the mother of six children. She was within a fortnight of the termination of her seventh pregnancy. All her previous labours had been quite natural, and there was no family history of hæmophilia. For six months previous to her illness she had worked hard and fared badly. She first noticed that her motions were black, and three days afterwards that her legs were covered with irregular purple patches. She had observed neither pain nor irritation with their onset. The next morning she awoke with hæmorrhage going on from her nose and mouth; the rash had also spread. Bleeding from the mouth and epistaxis continued during the sixth day of her illness, and on that evening her urine was of a dull red colour; slight back pains came on as of commencing labour.

February 16th, 1885 (seventh day of disease).—Her complexion was sallow, and the tongue and lips dry, brown and cracked. The gums were purplish in colour, bleeding easily on the slightest touch; the breath was offensive. The pupils were widely dilated, but no complaint was made of dimness of vision. Temperature

* Loc. cit.

normal, pulse 124 per minute, small and thready, but quite regular. On both legs and arms there was a generally distributed hæmorrhagic rash of a purplish colour, while on the thorax and abdomen the spots were much more scanty although of the same type. The urine was thick, dark tea-colour, and contained one-third albumen.

On the eighth day a few more spots came out on the legs, and the hæmorrhage from the gums continued. Labour pains commenced, continued the whole of the ninth day, without any fresh appearance of hæmorrhage, and on the tenth day a living female child was born, the breech presenting, and without any purpuric rash. The placenta showed three patches of recent hæmorrhage, but no post-partum hæmorrhage occurred, and her recovery was rapid; the rash faded in the usual way.

The temperature in this case was frequently taken; it varied between normal in the morning and $99\frac{3}{5}^{\circ}$ in the evening, and did not at any time reach 100°. I have therefore omitted the chart as devoid of interest.

Case 5 (Puech).*—The patient, aged 21, had been married eight months, and was six months pregnant. No history of any previous illness. The catamenia appeared when twelve years of age; were regular, lasting three days; no pain or excess of flow. She never suffered from rheumatism. No history of hæmophilia in family.

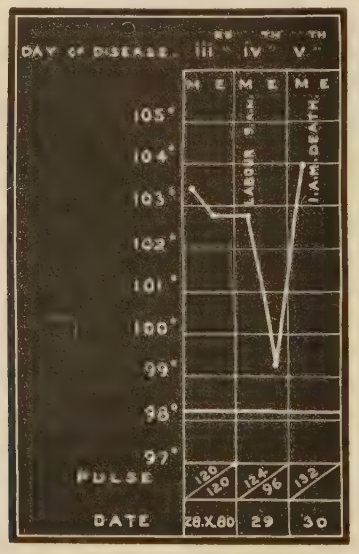
On the evening of December 25th, 1877, after a violent fit of anger, she felt bruised, and complained of palpitation and lassitude. At the same time and for four days consequent, petechial patches of purple colour appeared on the limbs, spreading over the breast and abdomen. There was severe hæmorrhage from the gums and copious epistaxis on January 6th, 1878 (twelve days after onset), the blood being fluid and a little fibrinous. Her pulse rose to 115 per minute, and there was some (?) fever. Labour began the next day. Her pulse remained small and rapid. Hæmaturia and hæmatemesis appeared, while a recurrence

* 'Annales de Gynécologie,' 1881, tome xvi, pp. 273–4.

of the epistaxis rendered plugging of the posterior nares necessary. The next day (January 8th) at 9 p.m. a male fœtus was expelled, without any purpuric rash. Intra-uterine concealed hæmorrhage followed, large clots being formed and expressed. Hæmorrhage into the puncta lachrymalia and conjunctivæ followed, and the palate and tongue became covered by purplish patches. Death occurred twenty-four hours after labour from the continued hæmorrhage.

Case 6 (Kezmarszky).*—The patient, a 2-para aged 29, came into the clinic 27th October, 1880, complaining of violent pricking pains in the sacral region for twenty-

Case 6 (Kezmarszky).



four hours. There were no uterine contractions, and examination of the painful spot gave a negative result. There were diffused purple ecchymoses on the abdomen and extremities, and on the conjunctivæ. The next

* 'Klinische Mittheilungen aus der I. Geburtshülflich-gynäk. Universitäts-klinik in Buda-pest, u.s.w.,' Stuttgart, 1884, s. 178.

day there were considerable pains in the head and sacrum, and in the evening labour pains began. Labour terminated the next day, the 29th, at 9 a.m., with the expulsion of a recently dead fœtus, 43 cm. long, and weighing 1900 grms. Twenty minutes after expulsion of the placenta severe post-partum hæmorrhage set in, which was stayed by ergotine and perchloride of iron intra-uterine injections. The hæmorrhage, however, recurred, and in spite of all remedies death rapidly ensued fourteen hours after labour. A glance at the chart will indicate the change of pulse and temperature.

The post-mortem showed the skin ecchymoses observed during life, subperitoneal petechial hæmorrhages in the left inguinal region. The body showed a condition of general anæmia.

Before relating the remainder of my cases I will make a few remarks on the three preceding, as they seem to fall naturally into one group.

In Case 4 the rash appeared on the fourth day of the disease, melæna being the first sign of the hæmorrhage. Labour came on on the ninth day, and was apparently due to the placental hæmorrhages. In Case 5 the rash was simultaneous with the onset of the illness, and crops came out successively for four days after, whereas in Case 4 there was only a recurrence on the eighth day. Labour began thirteen or fourteen days afterwards. In Case 6 the disease evidently began before labour at least twenty-four hours, and, as in Case 5, the first indication was probably the rash. The peculiar pricking sacral pain in this last case is a feature worthy of notice. Death was due in both cases to the severe hæmorrhages. It will be noticed in Kezmarszky's case that at the time of or soon after labour the temperature sank to $99\frac{2}{5}^{\circ}$, and was accompanied by a corresponding diminution in the pulse to 96, indicating a change for the better. I think the subsequent rise to 104°, and the death, could not be directly attributed to septic influence. The temperature might well be considered as the "fever of de-

privation," which is sometimes met with a few hours after severe post-partum flooding.

Case 7 (Dohrn).*—The patient, æt. 28, and a 2-para, had menstruated last in December, 1870. The first fœtal movements were felt early in June of 1871. On June 27th she came to the clinic complaining of severe sacral and abdominal pains, which she mistook for labour-pains. Vaginal examination showed that the end of pregnancy was not yet reached, and that labour had not yet commenced. On the belly and thighs were numerous petechiæ of the size of pins' heads, of clear reddish colour. Labour came on shortly after, and two stillborn, ill-smelling fœtuses were expelled within a few minutes of each other. A severe hæmorrhage followed, which was arrested by the usual means of vaginal injections and subcutaneous injection of ergotine. The petechiæ had now spread over the breast and legs, and the older spots had become purple in colour. Twenty-four hours after labour the patient became worse, and collapsed with apparently internal hæmorrhage. Large subconjunctival blood-spots appeared in both eyes. Half an hour later the patient was moribund, with a pale and very emaciated face. No post-mortem was allowed.

Case 8 (Dohrn).†—A servant, æt. 27, and a 2-para, was admitted into the clinic November 5th, 1871. She was about five months pregnant. Her previous labour was four years ago, and was quite normal. She had felt a little out of sorts for three days before admission, with headache and general malaise. The day before admission she was seized with severe sacral pains. No fœtal movements had been noticed. When admitted she was complaining much of the sacralgia; the belly and thighs were covered by a very abundant petechial rash, similar

* Quoted by Wiener, "Ueber hämorrhagische Erkrankungen bei Schwangeren und Wöchnerinnen," 'Archiv für Gynäkologie,' 1887, Bd. xxxi, s. 286.

† Loc. cit., s. 286–7.

to that described in Case 7. The spots were especially numerous in the groins, but more sparsely scattered towards the knee. Neither fœtal movements or heart's beat could be detected, nor fœtal members made out. Cervical canal closed, bilateral laceration. At 4.30 a.m. after admission, a fœtid stillborn child of five months was expelled, followed in five minutes by the placenta. At 9 a.m. (four and a half hours after) a severe post-partum hæmorrhage occurred, and with it hæmorrhage from the mouth. During the day the bleeding from the gums continued, and subconjunctival patches showed themselves. The spots became purple: death three and a half hours after the first post-partum hæmorrhage. No post-mortem.

To summarize the facts in these two cases, here are two healthy girls, in about the middle of their pregnancy and in the enjoyment of excellent health. They become suddenly and apparently without any reason attacked with severe sacral pains and general feeling of malaise. Multiple skin hæmorrhages occur shortly afterwards. Abortion ensues and severe post-partum hæmorrhage in each case; moreover this is accompanied by a large increase in quantity and deepening in colour of the rash, together with other hæmorrhagic symptoms: death occurred within twelve hours of the labour in Case 8, while it was shortly after the lapse of twelve hours in Case 7. Neither of them had been examined *per vaginam* before admission, and there was no history to be obtained of the prevalence of any exanthem in the districts whence they came. It will be remarked also that they both occurred during the winter months, and with nearly a year's interval: there was no septicæmia in the wards at either epoch.

It is worthy of notice that the products of conception were putrid in each case, fœtal death probably having occurred some time before labour. The absence of temperature charts and pulse rate leaves these cases very incompletely recorded.

Case 9 (Wiener).*—Mrs. D—, æt. 24, and a 1-para. Menstruation up to her marriage always regular, somewhat copious, lasting about four days. Has been married eight months, and is about seven months pregnant. She has been quite well during her pregnancy.

On March 25th, 1887, severe sacral pains commenced, and continued during the night and the next day. At 2 p.m. her labour passed off rapidly, the child living twenty-four hours, and no spots appearing on its skin. The placenta was expelled naturally and without hæmorrhage. About twelve hours after the labour a red petechial rash appeared on the neck, followed in a few hours (evening of 27th) by passage of bloody urine: the sensorium remained perfect. Highest temperature during the day 101·1° F.

On the 28th headache was severe; the face, neck, and trunk were covered by a scarlet petechial rash, which gradually towards the evening became purple in colour. The rash was mixed with larger patches up to the size of a lentil, which were more plentiful in the neighbourhood of the belly and epigastrium. With the rash, conjunctival hæmorrhages into both eyes appeared, also bloody sputum and severe hæmaturia. The gums and buccal and pharyngeal mucous membranes remained normal. Temp. 101° F., pulse 88 per minute. The lochia and genitals normal; hæmorrhage from the bowels shortly before death, which took place at 11 p.m. Sensible to within fifteen minutes of its occurrence. No post-mortem.

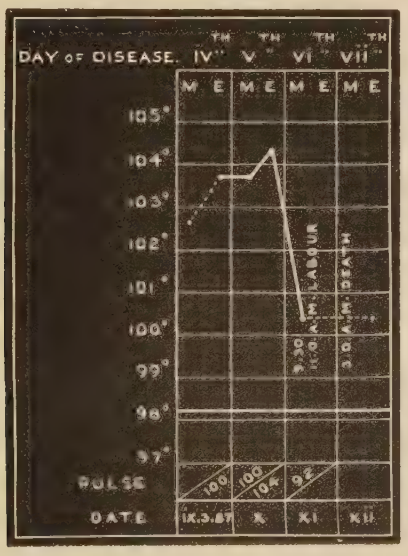
Case 10 (Wiener).*—Mrs. G—, æt. 32, sister of Case 9. At the time she first came under observation she was from five to six months pregnant. Her illness began on March 6th, 1887, when she complained of headache; this continued during the next day, and was accompanied by sacral pains, some abdominal pain, and actual sickness. On the 9th (fourth day of disease) her medical attendant

* Loc. cit., s. 282–3.

† Loc. cit., s. 284.

saw her and found her condition as described, but some hepatic tenderness in addition. He prescribed antipyrin for the pains. On the 10th, petechiæ of irregular shape and reddish in colour appeared on the arms and chest. On the 11th (sixth day of disease) a right conjunctival hæmorrhage was found. In addition to this there was hæmaturia; while a light chocolate-brown coloured sputum was coughed up. The skin rash spread over the whole face, neck, chest, upper extremities, and the upper

Case 10 (Wiener).



part of the lower extremities; it gradually darkened, and on the abdomen and legs became violet in colour in the course of the day.

At 11 a.m. a five to six months' stillborn fœtus was expelled; the placenta came away half an hour afterwards, and was followed by severe post-partum hæmorrhage, lasting three-quarters of an hour. She was restless during the day, and becoming unconscious and stertorous at 2.30 a.m. (seventh day), died shortly afterwards.

No post-mortem allowed. (Vide chart for pulse and temperature variations.)

Here are instances of two sisters being attacked shortly after one another with a disease almost identical with that occurring in Dohrn's two cases. Both were pregnant, both were seized with severe sacral and head pains, and the former were not due to commencing labour. Both the patients aborted, and a copious, light-red petechial rash appeared after the abortion in Case 9, and before it in Case 10, and became purple in colour shortly afterwards; death supervened in both cases in a few hours, but without any definite or direct cause in either. In Case 10 the antipyrin, which was administered to relieve the headache, was at first thought to be the cause of the rash, but the hæmorrhages persisted in spite of its discontinuance. In Case 9 the range of temperature was not much above 101° F., but in Case 10 it was above 104°, and as in Case 6, at or shortly before labour the temperature and pulse sank considerably, both combined being of favourable import.

The first question which arises in these last five cases is what influence had septic elements in the course of the disease? Against the existence of septicæmic influence we have the facts that all the patients were attacked before any vaginal examination was made; moreover it is, I think, generally admitted that it is extremely rare to find septicæmia supervening so rapidly after spontaneous abortion as it often does after a labour, at or near term. In Case 9, at any rate, the absence of splenic and hepatic swelling, the comparatively low temperature, and the healthy condition of the genital tract were all against septicæmia; and when it is noted also that the patient's pulse was under 90 before death the presence of septic influence seems very doubtful.

On the other hand, Dohrn's cases were delivered of putrid fœtuses; facts which alone would make any observer inclined to accept the theory. Besides, multiple skin hæmorrhages are very frequent in septic disorders;

indeed, according to Litten,* 60 per cent. of the cases have them. The rash in Cases 4, 5, and 6 was purple throughout; while in Cases 7, 8, 9, and 10 it was a light red, becoming purple in a few hours. The hæmorrhagic rash of true purpura hæmorrhagica is *said* never to go through this latter stage, but to appear purple at once.

If, then, these last four cases were not true purpura hæmorrhagica, and possibly not septicæmia plain and simple, under what category are they to be classed?

Three possibilities present themselves:

(i) That they were cases of pregnancy complicated by one of the acute exanthemata, *i. e.* smallpox, measles, or scarlatina, these assuming the hæmorrhagic form.

(ii) That they were cases of hæmophilia or hæmorrhagic diathesis modified by the pregnant condition.

(iii) That the rash was prodromal, and death ensued before the true disease developed itself.

(1) In Cases 4, 5, 6, 7, and 8 I think the question of exanthemata can be entirely excluded; but in Cases 9 and 10 there is the recorded fact that Mrs. D— (Case 9) visited her sister Mrs. G— (Case 10) on the day she died, and that she herself fell ill fourteen days afterwards of a similar complaint and also died. The evidence points strongly to the contagiousness of the disease; and if smallpox, measles, and scarlatina are excluded, it leaves us to face the bare possibility that acute purpura hæmorrhagica may sometimes be contagious: otherwise we must assume that two sisters, nearly at the same time, were without apparent reason attacked with a similar disease, which ran an exactly similar course, and bore some resemblance to a hæmorrhagic diathesis.

In hæmorrhagic measles there are, according to Thomas,† only single parts of the skin covered by a

* "Über septische Erkrankungen," 'Zeitschrift für klinische Medicin,' 1881, Bd. ii, s. 378.

† "Masern," in Ziemssen's paper, loc. cit., 1877, 2 Aufl., Band ii, s. 63.

purple confluent rash ; the others bear the ordinary rash. According to the same authority a purple rash may occur before or after the breaking out of the measles ; he is, however, contradicted by Trousseau, who declares that the purple colour due to hæmorrhage only appears in the later part of the disease in measles. The absence of nasal and ocular catarrh and other prominent and usual symptoms found in measles tends to disprove the idea of the disease having been hæmorrhagic measles. At the London Fever Hospital purpura has often been seen to follow scarlatina, especially when albuminuria has been present, but these cases are evidently dissimilar from those at present under consideration.

The question of smallpox need not, I think, be discussed.

(2) The hereditary and congenital character of hæmophilia must be kept in mind ; and if no symptoms of a disposition to hæmorrhage have appeared until after puberty, the case cannot be considered as one of hæmophilia.

Wiener's cases were two sisters certainly, but he inquired most carefully into the family history, and could obtain nothing affirmative on either side for three generations back.

(3) A prodromal rash sometimes occurs in smallpox, but it has never been known to assume the hæmorrhagic form.

I think that, to explain the different varieties of the disease just discussed, it would be well to suppose that two forms of purpura hæmorrhagica exist, the infectious and the non-infectious. Krebs and Recklinghausen separate them into those in which there is the presence of bacilli in or around the vessels, and those in which there are no organisms to be found. Hanot and Luzet* relate a case bearing on this point, where a mother, with a purpuric rash following grave nervous symptoms, was de-

* Quoted from 'Archives de médecine expérimentale et d'anatomie pathologique,' Nov., 1890, p. 772, in 'Annales de Dermatologie et de Syphiligraphie,' 3e série, tome ii, 1891, p. 185.

livered of a dead child, with no external but abundant internal signs of purpura. The microscope and cultivation tests showed the existence of streptococcus in the viscera and fluids in mother and fœtus, and to its presence the observers attributed without doubt the hæmorrhages observed in mother and child. Possibly the presence of pregnancy may excite the infectious form, and produce the rapid course and termination seen in several of the cases mentioned. At any rate, I cannot clearly see my way to throw all question of septic influence aside, nor can I help maintaining that the cases I have detailed are those of true purpura hæmorrhagica much modified by the pregnant condition.

As regards the transmissibility of the disease to the fœtus, my own cases appear to negative the idea ; but the case quoted above and another by Dohrn* seem to point in an opposite direction. It seems possible, then, to draw the following conclusions :

1. That the prognosis in cases of pregnancy complicated by this disease is extremely grave, the large majority proving very rapidly fatal.

2. Death may be due to post-partum hæmorrhage, or some constitutional condition allied to septicæmia, of the nature of which we are so far ignorant.

3. That abortion or premature labour inevitably takes place, but at variable periods, either owing to the serious general disturbance, or to hæmorrhage into the placenta.

4. That the ordinary purple rash may be modified somewhat, first appearing as a bright red stain, darkening in a few hours' time.

5. That apparently, so far as has been observed, the disease is not, as a rule, transmitted to the fœtus ; but that it may be classed as one of the causes of fœtal mortality *in utero*.

* 'Archiv für Gynäkologie,' 1874, Band vi, s. 486.

Additional Bibliography.

Wickham Legg.—'Treatise on Hæmophilia:' chap. x, "On certain Hæmorrhagic Diatheses in Women;" and bibliography, p. 129.

John Phillips.—'Brit. Med. Journal,' 1886, vol. ii, p. 921, and bibliography.

Ledouble.—'Annales de gynécologie,' 1877, tome vii, p. 290.

Rouvier.—'Annales de gynécologie,' 1879, tome xii, pp. 10 and 120; 1880, tome xiii, p. 115.

Grenser.—"Scarlatina in Puerperio," 'Archiv für Gynäkologie,' 1880, Bd. xvi, s. 488.

Kogerer.—"Zur Entstehung der Hauthämorrhagien," 'Zeitschrift für klinische Medicin,' 1886, Bd. x, s. 234.

And others by Liebmann and Olshausen on acute exanthemata complicating pregnancy.

Dr. Gibbons said that it was a matter of regret that in so excellent a paper no details were given of any observations on the condition of the blood, or of the microscopical examination of the tissues where there had been an opportunity post mortem. These cases of purpura hæmorrhagica were very rare, and as several had occurred in his own experience, he ventured to give some details of a case where he had carefully examined the blood. Menstruation commenced at fourteen; it was always regular, lasting some days, and was generally profuse, especially within the last few years. At the age of nineteen the patient had acute rheumatism, and in the year following a severe attack of hæmatemesis, a large amount of blood being lost. This so blanched her that it was more than two years before her health was re-established. At the age of twenty-three she married, and ten months subsequently gave birth to a child. The amount of post-partum hæmorrhage was not alarming. The menorrhagia which had been present for so long was again troublesome; and on one occasion, when the flow was severe, Dr. Gibbons was asked to see her, and found that she had the signs of purpura hæmorrhagica well marked. He did not think it necessary to dwell upon her condition; it was sufficient to say that she had all the symptoms of typical purpura hæmorrhagica, and that he attended her on three separate occasions within less than two years when suffering from the

same affection. In the second illness the bleeding was so serious that she had several attacks of syncope, and nearly died. During these attacks of purpura hæmorrhagica he had examined the blood, and found that the red corpuscles were exceedingly pale. The majority of the red corpuscles contained numbers of round black granules, and in many these minute bodies appeared as if they projected from the margin of the corpuscles. In some of the blood-cells these bodies were massed together, in some sparsely distributed, whilst in others there were only two or three, or none at all. It was observed that, at the onset of the illness, these bodies were not so numerous as when the disease seemed at its height, and that the number gradually diminished as the symptoms improved. When the patient was quite well none of these bodies could be found. They were present during each attack of the disease. With the hæmocytometer it was found that early in the disease the number of corpuscles per cubic millimetre was up to or slightly over 5,000,000, this number being given by Vierordt and Welcker as the average in health, whilst in the progress of the disease this amount was greatly reduced. There was an excess of white corpuscles. With the hæmoglobinometer it was found that the hæmoglobin fell to 30 per cent., and that at the end of the attack it reached 60 per cent.

Dr. Gibbons believed that, although these observations were of interest, there was probably no known permanent pathological change in the blood in purpura hæmorrhagica to account for the disease. Dr. Parkes in two cases had found an excess of iron, with diminution of the solid constituents of the blood. Dr. Gibbons believed that in the present state of our knowledge it seemed more reasonable to suppose that the primary morbid condition was to be sought for in the capillary and other small blood-vessels, and that the hæmorrhage was due to their rupture. In support of the theory that septicæmia was the origin of the disease Dr. Gibbons quoted a fatal case of acute purpura hæmorrhagica which he had published, where the patient was seized with this malady soon after drinking, probably on several occasions, pus in milk.

Dr. Herman had had under his care one case of hæmorrhagic purpura in a woman. She was admitted with anæmia, uterine hæmorrhage, and subcutaneous hæmorrhages. The uterus was swabbed with a styptic, and the hæmorrhage thus stopped: iron was given, and the anæmia improved. The purpuric spots ceased to appear. At her next menstrual period a fresh crop of purpuric spots made their appearance, and this was repeated at more than one subsequent menstruation. Dr. Herman took these hæmorrhages to be an indication of the increased vascular tension which accompanied menstruation. Purpura was of much interest to gynæcologists, because in a well-known and valued treatise on diseases of women, a case of purpura occurring in a patient with

absence of the uterus was related as being an instance of vicarious menstruation, and as proving the occurrence of this phenomenon. In Dr. Herman's opinion this case was ordinary purpura accidentally coinciding with absence of the uterus. Dr. Phillips spoke of "a condition allied to septicæmia, of the nature of which we are so far ignorant." Dr. Herman thought that if we were able to say of a disease that it was allied to septicæmia, we knew a good deal about it. Septicæmia he regarded as a very definite malady, and he did not think that progress was assisted by speaking of every disease that occurred in a patient who had had a chance of being infected with septic poison as "septic," or "allied to septicæmia." He did not see any reason for thinking that Dr. Phillips's cases had anything to do with septicæmia.

CHOREA GRAVIDARUM.

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(*Abstract.*)

The author details six cases of chorea gravidarum, and gives an account of the modifications of the disease during pregnancy.

The disease is subdivided into three different forms: (1) true chorea gravidarum; (2) hysterical chorea gravidarum; (3) a mixed form. The symptoms of true chorea gravidarum are given in full, special attention being paid to the influence of quickening, of the fœtal movements, and of peripheral stimuli, including the influence of suckling.

Age.—Chorea seldom occurs between eighteen and thirty, except during pregnancy.

Number of pregnancy.—It is commonest during a first pregnancy, true chorea seldom if ever occurring for the first time during a second or subsequent pregnancy, unless there has been some cause in the interval, such as rheumatic fever, to account for the supervention of the attack.

Period of pregnancy.—In the majority of the cases the disease begins during the third or fourth month.

Ætiology.—Most important is a previous attack of chorea, of rheumatic fever, or a distinct hereditary rheumatic history. Epilepsy and other disorders of the nervous system may be mentioned, together with fright, mental emotion, and anæmia.

For the production of chorea three factors are necessary: (1)

An hereditary predisposition to nervous excitability. (2) A blood-change or "blood-state." (3) Exciting causes. During pregnancy a change exists in the nervous system and in the blood, which favours the action of the factors previously mentioned; in addition, the irritation caused by the fœtal movements plays a minor part in aggravating the disease.

Seat of the lesion.—In severe cases the motor cortex, the intellectual centres, and the spinal cord are involved, the last being a secondary affection. In slight cases the motor cortex only.

Duration of pregnancy.—In the absence of complications this depends entirely on the severity of the disease; if severe it is very apt to lead to abortion or premature labour; in slight cases pregnancy progresses favourably.

Result to mother.—In the majority of the cases, recovery; in others, death; mania, which may persist; delirium, or paralysis.

Result to child.—Depends on duration of pregnancy; if delivery at term occur, risk to child is not greater than in a normal labour.

Period of cessation of choreic movements.—It is shown that, although after delivery the choreic movements diminish in intensity, in none of the cases observed by the author did they cease entirely, and in one case they continued for five months after labour.

Recurrence.—In cases where chorea has occurred in childhood a recurrence is almost certain to take place during pregnancy. Chorea gravidarum appears to resemble ordinary chorea, in that relapses may or may not be more severe than the first attack. If chorea has occurred during childhood, it is more apt to appear in successive pregnancies; and the younger the patient is during the first pregnancy the greater the liability to recurrence.

The relation of chorea to menstruation is discussed.

Cases of so-called post-puerperal chorea are described and commented upon.

The diagnosis, prognosis, and treatment are given in detail.

A summary of the literature of the subject is added.

In the compilation of the following tables only those cases are included of which complete records were published, and whose nature was thereby placed beyond doubt.

Age at which chorea occurred.—Out of 37 cases:

17 years	3	22 years	3
18 „	4	23 „	3
19 „	6	24 „	1
20 „	11	25 „	1
21 „	2	26 „	3

Period of occurrence.—Out of 36 attacks:

1st month	2	5½ month	2
2nd „	6	6th „	3
2½ „	1	6½ „	1
3rd „	6	7th „	1
3½ „	2	8th „	0
4th „	7	9th „	1
5th „	4		

Causation.—Out of 34 cases:

Chorea previously	11
Rheumatic and scarlet fevers	2
Rheumatic fever alone	2
Fright only cause stated	2
No cause stated	4
(In one of the cases, one sister had rheumatic fever, in another chorea, and rheumatism existed in the family.)	
Rheumatic fever and fright	1
Rheumatic fever and chorea	7
Scarlet fever, rheumatic fever, and chorea	1
Chorea and fright	3
Mental distress owing to pregnancy	1

Duration of pregnancy.—Out of 32 attacks in which there was no artificial interference:

Delivery at term	26
Miscarriage at 4th month (accidental hæmorrhage)	1
„ at 5th month	1
„ at 6th month	4

Result to mother.—Out of 39 cases:

Delirium or mania occurred in	8 cases.
„ „ cured in	4 „
„ „ followed by death in	3 „
Death from exhaustion in	3 „
„ puerperal peritonitis	1 „
Recovery in	32 „

The varied opinions expressed by different authors who have written on this subject show at once that precise information as to the manner in which chorea is affected by the pregnant state has not as yet been obtained.

The chief reasons for these conflicting statements seem to be due—

(1) To errors of diagnosis.

(2) To the fact that only the severe cases are published.

(3) To the small number of authentic published cases from which conclusions may be drawn.

It is my object in this paper to narrate the cases which have come under my own observation, and to give an account of the modifications of the disease during pregnancy.

Case 1.*—A. W—, aged 26, married, second pregnancy. Admitted into Queen Charlotte Lying-in Hospital, December 3rd, 1886, under the care of Dr. Grigg. Delivered December 4th, 1886; delivery aided by forceps. Presentation vertex, child alive, 6 lbs. 2 oz. No previous history of chorea, rheumatism, or scarlet fever obtainable.

Family history not stated.

First pregnancy normal, labour easy and natural, in June, 1885. Child still living. When two months advanced in her second pregnancy, she had a fainting fit lasting twenty minutes, without any apparent cause, these attacks recurring two or three times before quickening. After recovery from the first fit slight twitchings were noticed, but after the period of quickening they increased, and she also complained of unsteady gait with dimness of vision. These symptoms gradually became worse until about a fortnight before admission, when violent choreic movements were established, continuing without intermission till her admission on December 3rd, 1886.

State on admission.—Patient emaciated, face flushed,

* The notes of this case were taken by Mr. Cornish, Resident Medical Officer at Q. C. H., but being enabled to follow the patient's history up to the present time I have made certain additions.

violent and continuous movements, with occasional exacerbations, perfectly sensible, some dimness of vision, speech jerky and spasmodic. Movements became very violent, arching of back, jerking of arms, legs, and head. Patient had to be restrained in bed, the head of the bed being padded to prevent her injuring herself. In the worst convulsions the arching of the back was so strong as to resemble tetanus.

She was found to be eight months pregnant; fundus uteri close to ensiform cartilage; fœtal heart audible; os admits the finger. Urine acid, highly lithatic, no albumen. Labour was induced by gradual dilatation of the os, and afterwards pains strong and regular came on, delivery (4.30 a.m., December 4th, 1886) being accelerated by forceps. Uterus, which was somewhat flaccid after delivery, contracted well. No post-partum hæmorrhage. Third stage lasted twenty minutes. After delivery patient slept well for long intervals; convulsions returned on awaking; takes nourishment well.

December 4th.—2 p.m., choreic movements rapidly losing their violence, becoming less marked after each period of sleep. 6 p.m., choreic movements less, pupils equal, slightly dilated, react readily to light.

3rd.—Patient very quiet, only slight muscular twitchings when at rest, increasing when disturbed, *e. g.* for food. Speech much improved, but jerky.

6th.—Very quiet; twitchings slight, has slept very little during the night: choreic movements increase when she speaks.

7th.—Slept very little during night, but has been quiet. This morning choreic movements have been more frequent and more violent, chiefly confined to left side and face. Pupils normal. Has had abdominal pains, accompanied by increased choreiform movements, probably due to castor oil which had been administered.

8th.—Had good night's rest; is quieter this morning; occasional movements of left arm, wrinkling of forehead, with twitching of angles of mouth.

9th.—Had good night. No movements since waking. Left arm much stronger. Speaks quite plainly. No twitching of angle of mouth.

10th.—Slept well; muscular power in arms good; no choreic movements to be detected; pupils normal.

17th.—Discharged quite well.

Future history.—Chorea never recurred. July 16th, 1890, patient was reported quite well; had not become pregnant again; child alive and well.

Case 2.—F. M—, aged 21, married (under care of Dr. Grigg).

Family history.—Father rheumatic, mother healthy; one brother has had rheumatic fever, another pleurisy, others healthy. No chorea in the family.

Previous history.—Measles during childhood; has never had rheumatism. At age of eighteen years had a severe fright, caused by an electric gun being discharged close to her. A month later symptoms of chorea supervened, beginning in the right hand, spreading to the other portions of the right upper extremity, afterwards to the left side of the body, both sides being equally involved. Face and head also affected (more so than in the attack during her second pregnancy), speech markedly so. Slept well at night. This attack lasted eighteen months, being treated at the National Hospital for the Paralysed and Epileptic, and finally the disease disappeared completely. She suffered from retching, sickness, and headache at her menstrual periods, but the chorea was not increased. In the month of December, when twenty years of age, she married, and becoming pregnant, quickened on April 2nd, the quickening being accompanied by general choreic twitchings, which now reappeared, and, as the choreic movements, being bilateral, became very severe, she was admitted into the Royal Free Hospital, where she remained four months and a half, with the result that the chorea diminished in severity, but continued up till the time of labour. During her labour, which lasted ten hours, the

movements, still bilateral and equal, were much increased, being much diminished after the birth of the child. She could not say whether or not they recurred again. (Her statements were not very decided on this point, being unable to state when the choreic movements ceased.)

The child was born alive. After her recovery she remained quite well, and in the month of August stopped menstruating. Being pregnant for a second time, she quickened on January 10th; on this day she fainted in the street, sustaining an injury to her head. A few hours after recovery from the faint the chorea commenced again, and she is *absolutely certain* that she did not suffer from any choreic movements till after this fit. She does not know in what situation the movements began; however, two or three days later they became general. Every time the child was moved the choreic movements increased, and as the fœtal movements became more frequent, so also did the choreic twitchings. The chorea has been getting steadily worse. On April 21st, 1890, she had another fainting fit.

Present condition.—Anæmic, has the characteristic listless expression of face, pupils widely dilated. The choreic movements are bilateral, but are most marked on the right side, especially the right hand and upper extremity. Spinal muscles also affected. The cervical muscles being involved, the head is bent backwards and to one side at intervals. Facial muscles slightly and the tongue markedly affected. The jaws are clenched at intervals, accompanied by grinding of the teeth, and for this reason she is afraid to protrude her tongue lest it be caught between her teeth. She speaks with her jaws clenched for the same reason. During the night sleeps well, movements diminished but still perceptible during sleep; owing to their violence she has great difficulty in falling asleep. She considers that her chorea is not so severe during this pregnancy as in her first; micturition and defæcation normal.

Heart.—Systolic murmur heard over base of heart,

probably functional. Anæmic souffle heard on the neck. Her memory is much affected, and always has been during the attacks of chorea. As she was admitted into Queen Charlotte Hospital (April 26th, 1890) some days before labour commenced, I had an opportunity of watching her daily progress before labour. On examining the abdomen it was found that pressure so as to cause the fœtus to move increased very markedly the choreic movements, and she always stated that if the child moved a great deal the chorea was increased. The choreic movements were also increased by pinching or tickling different portions of the trunk and extremities, so that she appeared to be specially susceptible to peripheral stimuli, undoubtedly the greatest effect being obtained by pressure over the uterus. Movements also increased by vaginal examination. Her symptoms somewhat improved while kept at rest in the hospital, but with daily variations, chiefly due to the amount of sleep obtained the previous night.

Labour came on naturally on May 8th, when she was delivered the same day at 12 a.m. of a full time, female child, alive, weighing 6 lbs. 5½ oz. Presentation third vertex. Slight post-partum hæmorrhage occurred due to difficulty in managing uterus owing to the patient's movements. The second stage was rapid, stages as follows:—1st stage, 10 hours 20 minutes; 2nd stage, 10 minutes; 3rd stage, 22 minutes=10 hours 52 minutes. During labour—(1) The choreic movements were increased during the pains. (2) They were diminished, but did not disappear, after expulsion of child, increasing again slightly when the placenta was born. (3) Increased by her efforts to take the ergot administered to her. (4) Pains were long, strong, and frequent. (5) Uterus contracted well.

May 8th.—Choreic movements much diminished.

10th.—Choreic movements increased when baby suckles, nipples sometimes jerked out of child's mouth. Movements have ceased during sleep, but are increased with each after-pain. Speech improved, small clot passed

per vaginam. Pressure over uterus increases the choreic movements.

12th.—*Choreic movements increased and are general, tongue caught between the teeth.* Slept well, not much movement during the night.

13th.—Condition much the same.

14th.—Tongue still caught between the teeth, tickling any part of the body increases the movements; starts in her sleep.

15th.—Choreic movements less, tongue not caught between the teeth, pressure over uterus increases the movements.

16th.—For three days has been using a nipple shield owing to the marked increase of the chorea when the child suckles, with the nipple shield the effect is much less. Pressure over uterus increases the movements.

17th.—Choreic movements less, tongue well protruded, slept well.

19th.—Tongue not caught between the teeth, sleeps well, tickling increases the movements.

20th.—Movements increased by pressure over fundus uteri.

21st.—Movements much diminished.

22nd.—Discharged. Slight choreic movements still perceptible, the puerperium being normal otherwise, temperature never exceeding 99° F.

Future history.—The choreic movements did not entirely cease until five months after her confinement. Child quite well.*

Case 3.—This case, which was admitted into the Royal Infirmary, Edinburgh, under the care of Professor Simpson, is published by Dr. J. W. Talent,† then in charge of Professor Simpson's wards; and as I saw the case while a student at Edinburgh I may be allowed briefly to refer to it.

* Cannabis indica was used in the treatment of both these cases while in Queen Charlotte Hospital.

† 'Trans. of Edin. Obs. Soc.,' 1887–8.

E. M—, aged 17 years, unmarried, admitted June 22nd, 1887.

Family history.—Father suffers from rheumatic pains; mother healthy but of markedly nervous temperament; three brothers died during teething.

Patient was strong and healthy up till her thirteenth year, when working for a pupil-teacher's examination, symptoms of chorea gradually developed. She was sent to the Edinburgh Infirmary, and after being treated for three months was discharged well.

She resumed work as a pupil-teacher, continuing in good health until three or four months ago, when she complained of headache accompanied by pains in the shoulders and knees, said to be rheumatic. At this date her doctor informed her that she was pregnant, and soon afterwards her mother stated that chorea reappeared, this being nearly three weeks prior to her admission into the Infirmary. The choreic movements, at first slight, became gradually more pronounced.

Sexual history.—Menstruation began when patient was between thirteen and fourteen years of age, normal in character, continued regular until fifteen months before the present attack, after which time there was continued amenorrhœa.

On admission.—Patient was sparely built, complexion florid, hair black, cheek-bones high, teeth large. She was tossing about violently in bed, sometimes almost throwing herself out upon the floor. The facial muscles, especially of the lips, were irregularly and frequently contorted; the limbs flung about in an aimless manner, so that the bedclothes could not be kept in order. Movements of left arm more marked than the right; no difference noticeable between the lower limbs. She answered questions intelligently, articulation being prolonged and difficult. Heart, no murmur to be detected. Micturition and defæcation normal. Urine pale, acid, no albumen.

June 23rd.—Patient continued in same condition,

having slept very little during the night; movements cease completely during sleep. Uterus enlarged to the size of a seventh month pregnancy, cervix soft, patulous, admitting the finger easily. Professor Simpson separated the membranes around the os with the finger.

24th.—Movements very violent; back, buttocks, and legs covered with red erythematous patches (due to friction). Rest only obtained by chloroform frequently administered. Cervix uteri dilating. In the evening labour pains commenced, and she was delivered of a small male child, 3 lbs. 9 oz., which revived after artificial respiration. She was kept under chloroform for two hours afterwards, and then a large dose of chloral given.

25th.—During the day the choreic movements returned violently, but were not so severe as before delivery. Chloroform was again administered, and in addition 40 grains of chloral, after which she had some sleep.

26th.—Movements have subsided slightly, seemed to be conscious but did not speak, was taking a large quantity of milk and beef-tea. Urine drawn off by catheter. Right arm kept quietly by her side, only moved occasionally. Over back of elbow-joint the skin presented a diffused redness.

27th and 28th.—Movements abating.

29th.—Movements became as violent as ever they had been, perspired freely. Morphia and bromides had very slight influence. Chloral more effectual, giving a sleep of three to four hours after a dose of 30 grains, repeated in three hours.

July 2nd.—Temperature elevated, owing to formation of a large abscess over sacrum; on this being incised temperature fell, and has continued normal.

10th.—Says she is very well, no pain. Slight irregular twitchings of the hands still remain. Protrudes tongue steadily and with ease.

Child doing well, having been kept in an incubator and fed on peptonised milk. Future history not ascertained.

Case 4.—E. W—, aged 26, unmarried, first pregnancy. (Under care of Dr. Hope, delivered June 25th, 1890.) Vertex presentation. Child alive, full time, 8 lbs. 14 oz.

Family history.—Father has had rheumatic fever, mother healthy. One sister, age seventeen, has had rheumatic fever twice, chorea once. Another sister, age twenty-one, had rheumatic fever when eighteen years of age.

Previous history.—Has suffered from "rheumatic pains," especially during damp weather, but has never had rheumatic fever or chorea.

About four months before her labour she had irregular movements of hands and face, especially at night, her sleep being much disturbed; in fact, she walked about the greater part of the night. She says that these movements have gradually increased.

On admission patient was somewhat anæmic, pupils widely dilated, had the listless expression of face and nervous excitability of manner, distinctly emotional. (During the second day after her labour she cried whenever her baby cried.)

Heart.—Faint systolic murmur, probably functional. During labour the choreic twitchings were increased with each pain, labour otherwise normal.

June 27th.—Slight choreic movements of facial muscles, especially lips; tongue withdrawn suddenly.

28th.—Twitchings noticed in lips, forehead, and eyebrows, tongue retracted suddenly, choreic movements increased by pressure over the uterus, also when the baby uses the breast.

30th.—Movements the same, right leg moves about when an effort is made, is able to hold hands and arms perfectly still.

July 7th.—Patient's condition has remained much the same up to the present date. Movements less when child suckles, tongue and lips still affected.

8th.—Discharged. Slight twitchings of lips still observable.

Case 5.—F. W—, aged 23, married, first pregnancy. Under care of Dr. Grigg. Presentation vertex, female child, alive, full time. Admission into Q. C. H., August, 1890.

Family history.—Mother and father, who are both stated to have suffered from "fits," died while patient was very young, so that she was unable to give any information as to their general health. No history of chorea in the family.

Previous history.—Patient, who was the only child, suffered from epileptic fits at the age of sixteen years, being treated at the London Hospital by Dr. Warner.* In 1886 she had rheumatic fever followed by chorea, being confined to bed in a cottage hospital for two months; *since the attack she has never been entirely free from choreic movements.* In 1887 she had two attacks of rheumatic fever.

Sexual history.—She began to menstruate at age of twenty years, and since then her menstruation has been very irregular and scanty. She stated that the choreiform movements began to increase about a week before menstruation commenced, were most severe when the menstrual flow was at its height, gradually diminishing two or three days after the flow had ceased.† At the time of her marriage the movements were also increased, and in October, 1889, she became pregnant for the first time. Previous to her becoming pregnant she suffered from fits at frequent intervals, having at times several fits in one night. She was always aware that a fit was coming on, as she generally had a sweetish taste in her mouth, accompanied at times by a tickling sensation in the throat as premonitory signs. During these fits she has had frequent falls, injuring her head on several occasions; while in a fit she is stated to foam

* While in the hospital she was provided with an india-rubber ring to prevent her biting her tongue.

† These inquiries were made on two occasions, an interval of five months elapsing, the patient twice making exactly the same statement.

at the mouth, and to exhibit convulsive movements of the trunk and extremities. Her tongue also has been frequently bitten.

At first during her pregnancy the choreic movements were slight, and continued so up till Christmas, 1889, when she visited a relation, whom she found dead in bed. As a result of this shock she became unconscious, and on regaining consciousness dropped everything she caught hold of. About the middle of January quickening occurred, and after quickening she fell downstairs in a fit, biting her tongue. Ever since this period the movements have been getting worse, and an increase in the fœtal movements is attended by an increase of the choreiform movements. The epileptic fits also became worse, having at times five or six in one night. The fits were followed by increased choreiform movements, her condition being so severe that she required to be strapped down. The fits have been much worse during pregnancy than formerly, and have continued during the course of the pregnancy along with the choreiform movements.

State on examination.—Patient was very anæmic, pupils dilated, nervous and emotional, characteristic expression of face, grimaces being made at intervals, due to the affection of the facial muscles, twitchings of arms and legs on both sides, but especially the right, not very severe. Speech not altered, tongue affected; sighs at intervals; memory much impaired; heart, functional cardiac murmur.

Her labour came on at full time naturally,* lasting seventeen hours and twenty minutes, the choreic movements being increased during the pains. After labour the choreic movements diminished, but her mind was slightly affected, feeling, as she states, "as if going off her head;" during labour she also had this feeling. No fits occurred during the puerperal state, which was otherwise normal, the choreic movements being diminished but still present on her discharge from the hospital. Three weeks after leaving the hospital she had three fits, and soon after-

* August 1st, 1890.

wards had five more, other fits having recurred at intervals ever since.

November 1st, 1890.—On examination, twitching of facial muscles still perceptible, also slightly of upper extremities ; sighs at intervals. Very anæmic ; no increase of choreic movements when the child suckles.

Case 6.—J. O—, aged 17, married, primipara, labour full time. Child alive, 6 lbs. 11 oz. Under care of Dr. Grigg.

Family history.—Father died of pneumonia, but previously had suffered from rheumatic fever. Mother alive, healthy. Brothers and sisters healthy.

Previous history.—Had rheumatic fever at age of ten. Two years later had her *first* attack of chorea, said to be caused by over-study at school. *Second* attack came on three weeks after an attack of scarlet fever. *Third* caused by a fright. *Fourth attack* came on after a fall in which her arm was fractured. On becoming pregnant her chorea recurred for fifth time,* at the fourth month of her pregnancy. She quickened at four and a half months, when she fainted, and afterwards the choreic movements increased. Movements began first in the right arm, spreading to the right leg ; left side has never been affected. The movements of the child were not perceptible to any great extent during her pregnancy, and she states they did not lead to increase of the choreic movements. The chorea was rather better towards the latter end of her pregnancy.

On examination, appearance not so characteristic. Emotional, slightly anæmic, pupils not dilated. The choreic movements affect the right upper extremity and the right lower extremity, the left side being free from choreic movements. Tongue muscles involved, facial muscles very slightly. Memory good ; speech slightly affected. Labour very short, lasting three hours and forty minutes. Uterus contracted well, no post-partum

* The attack during pregnancy was not so severe as the other attacks.

hæmorrhage. Choreic movements increased during the second stage with each pain; movements diminished after delivery, but did not cease.

November 1st.—Movements still perceptible on the right side.

9th.—Movements more marked. Patient discharged from the hospital.

(The increase of the movements was no doubt due to the fact that the beneficial effect of complete rest in bed had ceased.)

On examining the cases* published as examples of this disease, it is evident that almost every condition during pregnancy associated with irregular or spasmodic movements of the limbs or trunk is published under the title of Chorea gravidarum. The first point to understand is what is meant by the term *Chorea*. Chorea is a disease† characterised by irregular spasmodic movements, by incoordination of voluntary movements, and often by muscular and mental weakness. We have now to ascertain how this disease is modified by the pregnant state. As is well known, certain changes occur during pregnancy in the blood and in the nervous system, which, as is shown further on, have an important bearing on this disease. But before considering the modifications of the disease, it would be well to indicate the conclusions arrived at by previous observers. It is matter for regret that so few cases of chorea have been published, as this has led to an erroneous impression that the disease is very rare; but I feel sure that the slighter cases, few indeed of which are on record, have been entirely overlooked, owing to the fact that it requires very careful observation to recognise the condition; and hence the very high mortality which is stated is also erroneous, as in so many of the published cases a fatal result ensued. Tables of cases have from time to time been published by various authors, but in many the records

* Gowers, 'Diseases of the Nervous System,' vol. ii.

† All the recorded cases which could be found have been examined.

were so incomplete, and the diagnosis so open to doubt, that much of their value is thereby lost.

A series of cases is recorded by Ingleby,* Lever,† Séc,‡ Morler,§ Mosler,‖ Romberg,¶ and Barnes** (who has collected the majority of the cases published under the title of Chorea Gravidarum up till 1868); Wenzel,†† has collected eight additional cases. Since then another table has been published by Schwecten,‡‡ and cases by Barnes,§§ Simpson,‖‖ Prince,¶¶ Richardson,*** Wade,††† Munde,‡‡‡ Brit. Med. Assoc. Coll. Mus. Comm.,§§§ Handfield Jones,‖‖‖ and Benington.¶¶¶

I have examined carefully the recorded cases, and have made a selection of those which appear to be authentic, and from which many of the following statements are derived.**

* 'Lancet,' 1840.

† 'Guy's Hosp. Reports,' vol. v, pp. 3—12, 1847, Second Series.

‡ Séc, 'Mém. de l'Acad. de Méd.,' 1850, t. xv, p. 373.

§ Morler, 'Archiv f. path. Anat.,' Bd. xxiii, 1861.

‖ 'Virchow's Archiv' (Heft 1 and 2), p. 149, 1862.

¶ Romberg, 'Lehrbuch der Nervenkrankheiten des Menschen.'

** 'Trans. Obs. Soc.,' vol. x, 1868.

†† 'Schmidt's Jahrbücher der gesammten Medicin,' vol. clxi, p. 200, 1874, which includes four by Sieckel, 'Inauguraldiss,' Leipzig, 1870; one by Weber, 'Berlin klin. Woch.,' vii, 1870; one by Fehling, 'Archiv f. Gyn.,' Bd. vi, 1874; one by Russell, 'Med. Times and Gazette,' January, 1870; one by Thompson and Davis, 'Lancet,' Oct., 1868.

‡‡ "Ueber Chorea Gravidarum," 'Dissertation,' Halle, 1876.

§§ "Lumleian Lectures on the Convulsive Diseases of Women," 'Brit. Med. Journ.,' 1873.

‖‖ 'Obs. Journ. Great Britain,' May, 1876.

¶¶ Ibid., Oct., 1876.

*** 'Boston Med. and Surg. Journ.,' July, 1877.

††† 'Trans. Obs. Soc.,' 1880.

‡‡‡ 'American Journ. of Obs.,' 1882.

§§§ 'Brit. Med. Journ.,' Feb., 1887.

‖‖‖ 'Trans. Obs. Soc.,' 1889.

¶¶¶ 'Northumberland and Durham Med. Soc. Trans.,' Dec., 1889. A case from Prof. Koranyi's Clinic is published in 'Virchow's Archiv,' Bd. lxi, p. 485, 1874; and Bd. lxiii, p. 104, 1875.

*** In the compilation of these tables cases have been copied from one author to another, with, in some instances, the addition of a few fresh cases.

Symptoms.—The chorea of pregnant females is undoubtedly a more grave disease than the ordinary chorea, and therefore it follows that the manifestations of the disease are more wide-spread and the prognosis as to life and mental deterioration more serious. After perusal of the recorded cases it seems that under the term chorea gravidarum we have classed many conditions associated with irregular and spasmodic movements. Now it is well known that during pregnancy hysterical manifestations in varied forms occur, and, moreover, the same manifestations will repeat themselves in successive pregnancies as, for instance,—paralysis of motion or sensation affecting one or more limbs ;* and under this category, in all probability, a form of hysterical chorea is not unfrequently met with. But here we are at once confronted with the difficulty that in hysterical subjects chorea may develop, and that in those suffering from chorea hysterical symptoms may occur, so that possibly we have in addition mixed forms. To solve this difficulty let us look for a moment at the symptoms of the disease as illustrated by the previous cases. In these the movements were (*a*) irregular and spasmodic, not hysterical ; (*b*) increased by emotion and by voluntary effort, especially if it required sustained action, as in holding the hand above the head. Now the character of the movements in chorea is very important, and it is on this that we rely as a prominent distinction from the hysterical form, in which the movements are more sudden,† and occasionally rhythmical. Again, in many of the recorded cases numbness and affections of sensibility are noted as prominent symptoms, which are in all probability hysterical in origin. We have further in many a history of previous hysterical manifestations, laughing fits, &c., but the distinction between the two

* Resembling the electrical chorea of dogs (Gowers, 'Diseases of the Nervous System,' vol. ii).

† Lever, "On some Disorders of the Nervous System, associated with Pregnancy and Parturition," 'Guy's Hosp. Reports,' vol. v, pp. 3—12, 1847, Second Series.

conditions will always be a difficult matter, so that special care is needed to see if the movements possess any peculiarity which is not present, or is present but rarely, in true chorea. It must also be borne in mind to exclude a possible source of imitation which is of great importance in hysteria. We have in all probability during pregnancy to deal with three different forms of this disease: (1) true chorea gravidarum; (2) hysterical chorea; (3) a mixed form. It is the true chorea gravidarum to which I wish specially to refer in this paper. We see during pregnancy the most severe examples of chorea, and for this reason the symptoms are modified accordingly. In the majority of the cases the choreic movements are bilateral, generally increased on one side. Romberg states that the chorea of pregnant females is "almost always bilateral." This is not strictly correct, as is shown in Case 6, in which the affection is unilateral; in Case 4, in which the two arms and one leg were affected, and in other recorded cases. In ordinary chorea the following table, taken from Gowers' 'Diseases of the Nervous System,' indicates the parts affected. Out of 64 cases—

	Right.		Left.
One side only	11	...	13
One side first	10	...	10
One side most	10	...	10
	31	...	33=64

The reason for the affection being so often bilateral during pregnancy is, that as the disease is more severe the manifestations are more wide-spread; and on careful investigation of the cases it is found that the chorea was at first unilateral or of limited extent.

The expression of the face is very characteristic, being listless and vacant, more especially when the facial muscles are affected, giving rise to peculiar grimaces. Muscular relaxation in the early, and mental apathy in the later stages are important causes of the changed expression. Dilated pupils are very often met with in this dis-

* Pain in the limbs is recorded by Gowers in one case during childhood and by Lever during pregnancy.

ease, but the condition appears to be due to muscular relaxation dependent on the anæmic state of the patient, and is no special feature of the disease, although Rosenthal* states that the dilatation of the pupil in severe attacks is due to the irritation of the cilio-spinal centre. In a large proportion of cases the face is affected; in some, however, it is stated that no twitchings of the facial muscles existed. Speech and the movements of the tongue are affected in proportion to the severity of the other symptoms. Sighing and other changes in respiration, such as loud whistling (Romberg), are observed in certain cases. Memory is certainly more markedly affected than in ordinary chorea, and it is interesting to observe how the memory improves when the choreic movements become abated or cease. Chorea going on to mania—maniacal chorea—occurs chiefly in females at or near puberty and during pregnancy. Usually the mental disturbance does not come on until the choreic symptoms are pronounced; but it may precede the chorea, the latter remaining slight or quickly ceasing, while the mental disturbance continues in intense form.† This important fact renders the prognosis at once more serious; for the mental disorder may continue in the form of dulness or delusions.‡

It will be apparent, from a study of the previous cases, that certain symptoms occur especially referable to the pregnant state, and first of all comes the influence of quickening. In a normal pregnancy when quickening occurs, *i. e.* when the maternal system for the first time becomes aware of the movements of the fœtus *in utero*, a certain amount of shock, especially in first pregnancies, is experienced, depending upon the nervous temperament of the individual. Now in patients suffering from chorea

* 'Diseases of the Nervous System.'

† A peculiar cry, first noticed by Romberg, has been recorded by other observers. This is interesting, because in epilepsy, which is closely related to this disease, a cry is frequently observed.

‡ Handfield-Jones, op. cit.; B. M. A. Coll. Invest. Com.; Mundé, op. cit.; Ogle, 'B. and F. Med.-Chir. Review,' 1868.

gravidarum we have to deal with those of a highly sensitive and excitable temperament, and therefore in them we should expect the period of quickening to be associated with more severe symptoms. This is precisely what occurs, and is well illustrated in the previous cases, where the patient, as in Case 2, at the period of quickening during her first pregnancy, was attacked with general choreic movements, and, at the same period during her second pregnancy, fainted; and, after recovery from the faint, the chorea returned. Again, as is shown in Cases 1, 4, 5, 6, the chorea, which began previous to the period of quickening, was increased by the movements of the child becoming perceptible. Moreover, as illustrating the fact that quickening has a greater effect than usual on these patients, it will be observed that fainting fits occurred at that period in Cases 2 and 5.

It may now be safely concluded—

(1) That the effect on the system, due to the perception of the fœtal movements, is greater than in normal pregnancies.

(2) That in certain cases chorea appears when quickening is first perceived.

(3) That after the period of quickening in many cases the intensity of the choreiform movements is increased. This influence produced in many cases by quickening is precisely analogous to the influence of fright or mental emotion, which is almost universally admitted as a factor in the production of chorea, and that the perception of the fœtal movements for the first time gives such a shock to the nervous system as to produce fainting fits, or the appearance of choreiform movements. The fainting fits are evidently predisposed to by the anæmia from which so many of the patients suffer, and also by the highly emotional state of their nervous systems. We have further to bear in mind, as shown in the previous cases, that the influence of the fœtal movements as a cause of increased choreiform movements is shown to continue during pregnancy, and that in Case 2 it was possible by

pressure on the fœtus *in utero* to produce at will increased choreic movements in the mother. The influence of chorea during labour has also been studied, but in the recorded cases some diversity of opinion occurs with regard to this subject.

It is stated that in one case* the movements ceased when labour pains set in; in another case† that "the movements (choreic) ceased during the pains, but in the intervals were most distressing;" in others the choreic movements are stated to be increased during labour. The labours, as a rule, if normal otherwise, are of short duration; and during the pains, especially when effort is made, as in the second stage, the choreiform movements are increased. After the expulsion of the child the choreic movements are somewhat diminished, but are increased again when the placenta is expelled. After complete delivery the movements are diminished, and it is extremely doubtful, although statements exist to the contrary, if ever in cases of true chorea the disease entirely ceases after delivery. It may be observed in some of the cases that the choreic movements undergo an increase during the puerperal state, generally about the third or fourth day; this may be due to the irritation in the breasts, or other forms of irritation, as in Case 1, where abdominal pain, due to the castor oil, was supposed to be the cause.

In Case 2, as stated in the notes, pressure over the uterus increased the choreic movements; but as this patient was very easily affected by peripheral stimulation in other parts of the body I was inclined at first to doubt the accuracy of the observation, but as a constant result was obtained, and as a similar result occurred in another case (Case 4), I am inclined to think that certainly choreic movements can in this way be increased. In all probability this had a similar effect to that produced by the movements of the fœtus. In the severe cases the patients

* Lever, op. cit.

† Ibid.

are unable to suckle their children, and it is interesting to note that the act of suckling increases the choreiform movements, as in Case 2, where at times the mother's nipple was jerked out of the child's mouth. In this case, also, with each after-pain there was an increase of the choreiform movements.

Heart.—Endocarditis may or may not be associated with chorea gravidarum ; if it be present, the prognosis as to life is much more serious. Hæmic murmurs, as in the previous cases, are frequently observed, due, no doubt, to the anæmia accompanying this disease.

The urine contains excess of urea and phosphates (Walshe, Handfield-Jones*). Albumen and sugar are also noted as being present, but these latter are observed so often during normal pregnancies that their presence may be disregarded.

In this relation it may be stated, in explanation of the increase of urea, that this condition occurs in anæmia due to increased proteid metabolism. The classical experiments of Fick and Wislicenus show that muscular exercise does not increase the excretion of urea ; but Oppenheim has shown that this want of increase only occurs where deficiency of oxygen causing dyspnœa exists. It may be observed that choreic patients do not, except in severe cases, suffer from exhaustion as a result of the persistent movements. This is probably due to the constant change in the spasm, and the excessively short duration of individual contractions.

Phosphates are normally diminished during pregnancy, being used up, as is supposed, to form the fœtal bones.

Their increase in chorea may have something to do with the disturbance of the nervous system in this disease.

Age of the patients.—With regard to the age at which chorea occurs, we have here a marked difference from ordinary chorea, in which the average age is from four to seventeen years ; but, as is seen from Case 4, chorea occurred for the first time when the patient was twenty-

* 'Clinical Society's Trans.,' vol. iv.

six years of age. In this connection Gowers remarks that "chorea gravidarum scarcely ever occurs for the first time over twenty-five years; females are more liable to relapses than males. Almost all patients who have more than three attacks are of the female sex." The disease seldom occurs between eighteen and thirty, except during pregnancy. Tait* mentions a case recurring in four successive pregnancies, the age of the patient being twenty-seven at the time of the fourth pregnancy; so that in the pregnant female we have conditions specially adapted for the recurrence of this disease.

Number of pregnancy.—Chorea is commonest during the first pregnancy, owing to the fact that the patients are subjected to the test for the first time, and it is open to question whether or not true chorea ever occurs for the first time during a second or subsequent pregnancy, unless there has been some cause in the interval, such as rheumatic fever, to account for the supervention of the attack.† The cases which are published (*e. g.* Case 1) as examples of the disease occurring during a second pregnancy for the first time, have only, as in this case, the patient's statement as the source of information, so that it is possible the condition during the first pregnancy, being very slight, was overlooked, and that an augmentation of the symptoms took place during the second pregnancy. This would also apply to subsequent pregnancies.

Period of pregnancy.—The majority of the cases begin during the third month, others during the second and fourth months, and a small proportion during the last months of pregnancy.

Cause.—The most important cause of all is a previous attack of chorea, examples of which are to be found in the previous cases. Next in importance comes rheumatic

* 'Dublin Journ. of Med. Sciences,' 1868.

† This is well shown in Case No. 239, Brit. Med. Assoc. Coll. Med. Com. Rep. Woman, aged 26, in whom chorea supervened four months after her confinement, being preceded by rheumatic pains and anæmia, emotion due to loss of money being the exciting cause. Chorea recurred during her next pregnancy.

fever or a distinct rheumatic history,* epilepsy, or other nervous disease in the family, showing a predisposition to disorders of the nervous system, so often met with in diseases of this description.

Among other causes fright and mental emotion have been too frequently recorded to be overlooked, the proportion of cases being as great during pregnancy as in the disease during childhood, in which a quarter to one-fifth of the cases come under this head. The frequency of the disease in the unmarried must be kept in mind in this relation. Falls and injuries (Case 6) are to be included as excitants, the effect being doubtless due to the mental emotion attendant on these accidents. Mental overwork, as in Cases 3 and 6, must also be mentioned, the effect of over-study being clearly shown in the cases collected by the British Medical Association Collective Medical Committee. With regard to the causal relationship of scarlet fever to chorea, it is necessary to remember the common occurrence of this malady as a disease of childhood, and it is probable that it has no particular relation to chorea except that through leading in some cases to anæmia it would thereby act as a predisposing cause; for the importance of anæmia must not be underestimated, as chorea, especially if severe or of long standing, has a decided tendency to lead to anæmia; it follows necessarily that the result must be worse if the patient be anæmic before the attack. Now, coming to the relation which chorea bears to the pregnant state we have to grapple with a difficult pathological problem: and to give a satisfactory explanation we must decide, firstly, where the disease is situated; secondly, what is the cause at work.

Situation of the disease.—From a careful study of the causes and symptoms of this disease it is evident, as

* I use the term "distinct rheumatic history" because patients so often mention that their parents suffer from "rheumatic pains," which are of frequent occurrence, so that only if the rheumatic history be distinct is it reliable.

advocated by Gowers, that the motor cortex is affected; the reasons for this supposition are, firstly, that the movements are unilateral at first, and that the arm is often more affected than the leg, thus corresponding with convulsive epileptiform seizures, as in Jacksonian epilepsy. Although during pregnancy the affection is frequently bilateral, still careful observation will show that the disease commenced as a unilateral affection, and that, as it increased both sides became affected. This is to be explained by supposing that the disturbance in the motor cells of the cortex, being at first confined to one hemisphere, spreads to the cells of the neighbouring hemisphere, and in the cases where the affection persists as unilateral this spreading does not take place; moreover we find that where the affection is bilateral* we are more prone to meet with those mental disorders which show that the disturbance has spread still more and involved the intellectual centres.

Secondly, the close relation which chorea bears to insanity and epilepsy (as illustrated in Case 5), and the fact that a mental affection of greater or less severity exists in almost every case of chorea.

Thirdly, the occasional occurrence of convulsive and epileptiform attacks (Case 1).

Fourthly, chorea resulting from organic disease of the cortex (Macleod).†

Fifthly, as a result of experimental lesions of the cortex (Couty).‡

* It may be mentioned that in hemichorea, as pointed out by Hughlings Jackson ('Ed. Med. Journ.,' Oct., 1868, p. 294), the movements are bilateral in the abdomen, chest, and eyes, and imperfectly so in the brow, facial muscles, and tongue. This is explained by Broadbent's theory that muscles which habitually act in concert with the corresponding (or some other) muscles of the opposite half of the body, and with difficulty or not at all independently of them, are innervated from both sides of the brain and spinal cord, these muscles not being paralysed in hemiplegia.

† 'Journal of Mental Sciences,' 1881–2.

‡ "Sur les lésions corticales du cerveau," p. 487, 'Archives de Physiologie,' 1881.

As the disturbance in the motor cells spreads and an affection of the intellectual centres occurs, leading to mania, we notice that the latter exert their inhibitory influence over the action of the former, so that during the course of the mania the choreic movements are diminished or entirely cease; and that when, owing to improvement in general nutrition, the exalted action of the intellectual centres quiets down, the motor cells in their turn resume their activity, and accordingly choreic movements reappear, but as the improvement progresses their increased activity ceases, and the movements disappear. The vexed question which still exists is, what part does the spinal cord play in the process? That it has some influence is shown by the experiments of Couty, where choreic movements produced in monkeys by lesions of the cortex still continued when the spinal cord was divided; but clinical evidence has not been forthcoming to supplement this experimental result.

The majority of observers state that the spinal cord is not affected, prominent among whom is Dr. Broadbent, who in a very able paper* discusses the pathology of chorea, inclining to the view that in this disease the sensori-motor basal ganglia are affected, and that the spinal cord is not affected. The objections to the spinal cord theory are as follows, the first four being given by Russell Reynolds.

1. Clonic spasm of incessantly repeated character is not a phenomenon of persistent spinal irritation. (Tonic spasm is most frequently.)

2. The movements (unless very severe, and even then to some extent) are generally controlled by the will.

3. The spasmodic movements cease during sleep. Direction of attention to some other object likewise diminishes the intensity of the choreic movements.

4. The special occasions of increase or of induction of choreic movements are the attempts at volitional action and the emotional changes.

* 'Brit. Med. Journ.,' April 17th, 1869.

5. Tickling the palm of the hand or sole of the foot does not excite exaggerated reflex action.

6. The most conclusive evidence, however, that the phenomena of chorea are not of spinal origin is the fact that they are so frequently unilateral.

Now, by a study of the cases recorded in this paper, several objections can be raised against those put forward by Dr. Broadbent.

1. In many of the severe cases of chorea tonic spasms are met with; in fact, it is almost the rule to find tonic as well as clonic spasms in these cases.

2. In severe cases the will has no control over the movements, an effort of the will in many cases increasing rather than diminishing their intensity.

3. In slight cases the movements cease during sleep, but in severe cases it is impossible, owing to the intensity of the movements, that the patients can fall asleep; and theoretically in falling asleep, owing to increased excitability of the spinal cord, the movements would become more severe.

4. This does not preclude the idea that the spinal cord is affected, as the brain in this disease must exert its influence over the spinal cord.

5. In Case 2, when the soles of the feet were tickled the choreic movements were markedly increased; tickling of other parts of the body produced a like result. It also must be kept in mind that if the sensibility be affected this condition would not be obtained. From this case it clearly follows that abnormal excitability of the cord, with an undue readiness to respond to impressions, existed.

6. This objection cannot be raised against severe cases of chorea, as the movements are almost always bilateral.

In speaking of the influence of pregnancy, Dr. Broadbent classes this under peripheral irritants, and he supposes that peripheral irritation causes an asthenic condition of the sensori-motor ganglia. Be this as it may, the fact remains that the influence of pregnancy is not one of peripheral irritation alone, but the associated changes in

the blood and nervous system are of much greater importance. In all probability this peripheral irritation plays a minor part only in the causation of the disease. If it be granted, as is shown more especially in Case 2, that in severe cases the excitability of the spinal cord is increased, then it is evident that under these circumstances the effects of peripheral irritation are more pronounced, and are due to the change in the cord, so that the phenomena are the effect and not the cause of the nerve change. This increased effect of peripheral irritants is only to be observed in the severe cases, and is absent entirely in the slight cases of chorea gravidarum.

As in the previous cases, there are certain facts which point to the spinal cord being secondarily affected in severe cases, and its reflex excitability increased thereby. (1) By the increased effect of peripheral stimulation, *e. g.* pressure over the uterus, and effect of tickling on other parts of the body. (2) By the effect produced by the fœtal movements, which although acting at first on the emotion must latterly act as a source of peripheral irritation. (3) By the effect of suckling on the choreic movements. In Case 2 the patellar reflexes were tested, but owing to the violence of the movements the results were not trustworthy.

That the chorea of pregnancy is not entirely a reflex disorder is shown by the fact that the movements do not cease completely after delivery, which ought to occur if this were the case. We may conclude, then, that in severe cases the motor cortex, the intellectual centres, and the spinal cord are affected, the last being a secondary affection.

Secondly, what is the cause at work ? Under this head must also be included the relation which the disease bears to pregnancy.

In choreic patients we meet with those who are hereditarily possessed of highly excitable nervous systems, and before pregnancy occurs the effect of this predisposition is very often increased by a previous attack of chorea ;

in addition to this predisposition we have a blood-change, in some cases induced by rheumatic fever, in others existing along with the hereditary tendency to nervous excitability, and only requiring the additional influence of emotion to disturb the balance of the nervous elements. Now when we look to pregnancy as a cause of chorea, its influence can be made out on the same lines. During the early months there are ample opportunities for observing the numerous functional disturbances associated with the nervous system which are exhibited from time to time by various patients ; in fact, we have here a close resemblance to the unstable state of the nervous system existing at the time of puberty, when chorea occurs so frequently, and when emotion as a cause of the disease is so often observed. Again, during pregnancy we have a change in the blood—true, in normal pregnancies occurring chiefly during the latter months, an hydræmic plethora ; * but we must also remember that when anæmic patients become pregnant the anæmia in certain cases takes the form of progressive anæmia, as shown by Gusserow,† which begins insidiously in the earlier months. Now the large majority of patients who on becoming pregnant suffer from chorea are anæmic, and, as is well known, chorea is a disease which leads to anæmia through its exhausting effects on the nervous system, and the physical and mental unrest resulting therefrom ; we have, therefore, a vicious circle set up. A highly emotional patient becomes more emotional during pregnancy, suffers in addition from anæmia, the anæmia becomes aggravated, and chorea results, which in its turn affects both the blood and the nervous system. Under these conditions it follows that during pregnancy chorea is met with in its most severe form. The changes in the nervous system and the commencing changes in the blood probably explain the greater frequency of the disease during the earlier months.

* 'Archiv f. Gyn.,' ii, p. 218.

† Hasse, "Das Blut der Schwangeren," 'Archiv f. Gyn.,' x, p. 315.

Under the above conditions it is not surprising that the disease is rapid in its onset and in the severity of the symptoms, that mania or a mental affection of greater or less severity results, and that death from exhaustion, preceded in some cases by premature labour, terminates the disease. As previously referred to, it is difficult to imagine how this disease could terminate immediately after delivery, as time must elapse for a process of repair to take place.

Finally, in considering the pathology of chorea, we should not place too much reliance on any single factor, but must consider each one as having its own place in the causation of the disease. The numerous pathological changes in the nervous system which are found in fatal cases of chorea are probably rather the effect than the cause of the disturbance of the nerve elements, as is the case with many of the corresponding changes met with in cases of insanity.

The further reading of this memoir was adjourned till the next meeting.

NOVEMBER 4TH, 1891.

J. WATT BLACK, M.D., President, in the Chair.

Present—45 Fellows and 11 Visitors.

Books were presented by Dr. Percy Boulton, Dr. Frommel, and the Edinburgh Obstetrical Society.

The following gentlemen were elected Fellows of the Society :—William Henry Gimblett, L.R.C.P.I. Robert Colgate Holman, M.R.C.S.(Midhurst) ; James Henry Targett, M.B., B.S.Lond., F.R.C.S. ; and Bertram C. A. Windle, M.A., M.D., B.Ch. Dubl. (Birmingham).

HÆMORRHAGIC CARCINOMA OF THE OVARY.

By C. J. CULLINGWORTH, M.D.

DR. CULLINGWORTH exhibited a carcinomatous tumour of the ovary from a woman aged 53. The main portion of the tumour consisted of a large cyst-cavity, measuring 6 inches by 4 inches, filled with brownish-red blood-clot. The cyst-wall had given way, and blood had been poured out into the peritoneal cavity, giving a deep red colour to the ascitic fluid which it already contained. The condition is not uncommon in the kidney, but in the ovary it is believed to be exceedingly rare.

The tumour was removed by operation on September 17th, 1891. No ill effects followed the operation, but the patient gradually lost flesh and strength, and died from extension of the disease at the end of October.

A water-colour drawing of the specimen by Mr. Holding was also shown.

SUPPURATING OVARIAN CYST.

By C. J. Cullingworth, M.D.

Dr. Cullingworth showed a specimen from a single woman, a primipara, aged 24. The history dated from eighteen months ago, when a small lump was discovered in the abdomen. Since that time menstruation had only taken place once, and there had been repeated attacks of severe abdominal pain.

The cyst was resonant on percussion, and this fact, with the history, led to the diagnosis of a suppurating cyst, containing gas. The cyst had developed from the left ovary. It was universally adherent. During enucleation the cyst-wall gave way, when some foul gas made its escape first, and then a quantity of thick, yellow, offensive pus. The broad ligament was enormously thickened. The normal Fallopian tube ran over the cyst. The emptied cyst, lying flat, measured $3\frac{7}{8}$ inches in diameter. The wall was very thin in places, and was lined throughout by a layer of adherent fibrin. The operation took place on September 1st. The patient made a good recovery, and went to a convalescent home on October 22nd.

A SERIES OF SEVEN CASES OF PYOSALPINX.

By C. J. Cullingworth, M.D.

Dr. Cullingworth exhibited the parts removed by abdominal section in seven cases of pelvic peritonitis due to pyosalpinx, accompanied in some instances with ovarian suppuration. All the seven cases, as well as the two ovarian cases already shown, had been operated upon at St. Thomas's Hospital within a period of less than five weeks, the first specimen of the series having been removed on August 24th, the last on September 24th of the present year. He would confine himself in his remarks to the shortest possible abstract of each case, leaving the clinical details to be dealt with at some future time. He might mention that he was preparing a paper, which he hoped shortly to finish, giving full details, clinical and pathological, of his first fifty cases, amongst which the present series was not included.

1. The first specimen was from a married woman aged 37, and consisted of the right Fallopian tube, enlarged and distended, and the normal right ovary. The origin of the inflammation was obscure. On admission, a pyosalpinx was diagnosed on the right side. Abdominal section was performed August 24th, 1891, and the tube removed with the adjacent ovary. Both were universally adherent. The walls of the tube were enormously swollen. At the uterine end, where there was no dilatation of the canal, the diameter was seven-eighths of an inch. There was pus along the entire length of the tube ; in two places, one of them being the occluded fimbriated end, the tube had become dilated. Both dilatations were found full of thick pus.

The ovary was not diseased.

The left appendages were adherent, but as they appeared otherwise normal they were not disturbed. The

patient made an excellent recovery, and left the hospital on September 12th.

2. The second specimen was also removed from a married woman, aged 37. Illness dated from last confinement, eleven months ago, but until July 31st the pain had not been severe. There was a fixed soft swelling in left posterior quarter of the pelvis, diagnosed as a pyosalpinx.

Abdominal section was performed August 27th. The left tube was found greatly elongated, thickened, and tortuous; its fimbriated end was closed, and dilated into a large pus-containing sac. The sac was thought, during the operation, to be a suppurating ovarian cyst communicating with an inflamed and suppurating tube; but on careful examination after removal the supposed cyst was found to be part of the tube, while the ovary was merely represented by some condensed ovarian tissue which had been cut across in dividing the pedicle.

The right appendages were adherent, but appeared otherwise free from disease; they were not removed.

The patient made a good recovery, gaining flesh and improving in health generally. She left the hospital well on October 2nd, and has since reported herself as continuing to gain strength.

3. The third is a specimen of double pyosalpinx from a married woman aged 25, whose present illness dated from nine weeks ago. Four or five years previously she had been under treatment for abdominal pain accompanied by a yellow discharge. In the meantime she had been apparently well. There was a cystic swelling in Douglas's pouch, a thick tube-like swelling on the right of the pelvis, and a similar but smaller one on the left. The diagnosis was double pyosalpinx, with serous effusion in Douglas's pouch, and a small intra-peritoneal hæmatocele.

On opening the abdomen, August 28th, a little dark blood was found in the peritoneal cavity. The pelvic contents were densely matted. On separating them, a quantity of blood-stained fluid of putrid odour escaped from

the neighbourhood of Douglas's pouch, with some old clot. The left tube was thickened and elongated, and, curving backwards, embraced a tense cyst of the ovary, into which a hæmorrhage had taken place. The right tube was also thickened and elongated, and the fimbriated ends of the two tubes were so densely adherent to one another behind the uterus that a portion of one tube was torn across and removed with its fellow.

The removed portion of the left tube measures 4½ inches in length. Its maximum diameter is an inch. A drawing of the tube is shown in longitudinal section.

The removed portion of the right tube measures 2½ inches in length. Its maximum diameter is half an inch. Both tubes contained pus.

The left ovary, the size of a small orange, consisted of a sac filled with dark bloody fluid, and was lined with a layer of adherent fibrin. Blood was extravasated into the substance of the cyst-wall in two places. It had the appearance of having been strangulated.

The right ovary was cystic, the size of a pigeon's egg; one cyst contained firm blood-clot, another serum.

The patient made an excellent recovery. A small sinus still remains at the lower angle of the wound.

4. The fourth specimen is a right pyosalpinx from a single woman, aged 21, whose illness dated from three weeks after the birth of an illegitimate child in the Greenwich Infirmary in March last. There was an irregular swelling in each posterior quarter of the pelvis, larger on the right. The diagnosis was double pyosalpinx. Abdominal section was performed on August 31st. The parts removed and now shown consisted of the left tube and part of the normal left ovary. The portion of tube removed measured 5 inches; the diameter of its widest part 1¼ inches, of the uterine end ¾ of an inch. It was dilated in three places, each dilated portion being filled with thick pus. The distal end was occluded. The tube was coiled upon itself, so that the two extremities were close to one another. The wall of the tube was one-

eighth of an inch in thickness. Left appendages adherent, otherwise normal; not removed.

The patient made an uninterrupted recovery, and left the hospital well on September 23rd.

5. In the fifth specimen, in addition to the disease of the tubes, there was a small suppurating cyst of the ovary. It was removed from a married woman, aged 36, who had been in apparently good health up to July 31st.

An irregular, fixed, tender swelling was felt in the right posterior quarter of the pelvis, and a smaller one on a higher plane in the left posterior quarter. The diagnosis was double tubal inflammation, probably purulent. Abdominal section was performed on September 11th. Both tubes were inflamed and adherent. The portion of right tube exhibited measures 4½ inches long and ½ an inch in diameter; the portion of left tube 3½ inches long and ⅓ of an inch in diameter. The mucous membrane of both was highly congested. The distal end of the right tube was dilated into a pus-containing cavity; at its uterine end was a small suppurating cyst beneath its serous covering.

The left ovary burst during removal, discharging a small quantity of thick pus; on section it was found to contain two cysts, of a diameter of ¾ of an inch. One of these contained clear serum, the other a firm blood-clot.

The enlarged right ovary was firmly adherent to the distal end of the right tube. On section it proved to be a dermoid, containing hair and the usual contents of such cysts.

The patient made a good recovery. A water-colour drawing was shown of the fresh specimen.

6. In the sixth specimen a combined hydro- and pyosalpinx is present on one side and a hydrosalpinx on the other. It is from a woman aged 40, who dated her illness from an attack (said to have been typhoid) twelve years ago. She married a second time at 28, and this so-called typhoid occurred a fortnight after this marriage. It was

accompanied with abdominal pain, but was not characterised either by diarrhœa, headache, or rash.

On admission she was extremely anæmic from loss of blood during a recent miscarriage. On the right side of the pelvis was a well-defined but irregular swelling, with a transverse sulcus on its under surface. This was diagnosed as the right tube distended and bent upon itself, or a distended right tube with cystic ovary adherent to it.

Abdominal section was performed September 21st, and a tense cystic swelling, thought at the moment to be ovarian, was found lying adherent behind Douglas's pouch, and was removed. This proved to be the occluded and distended right tube, bent upon itself, and embracing in its two arms a large serous cyst of the mesosalpinx. On withdrawing the contents of the tube the fluid was at first clear and straw-coloured, while the last two or three drachms consisted of thick pus. At the uterine end of the tube a curious constriction, shown in the water-colour drawing, was observed. The tube ran out from the uterus, and formed a tense blind pouch three-quarters of an inch long; then came a constricted portion three-quarters of an inch long, and then the main portion of the tube, commencing in a tense blind extremity, like a small vermiform or other more useful appendix, tense and erect.

There was occlusion of the left tube, with some dilatation of the distal extremity, the contents being serous.

The patient recovered without a bad symptom, and left the hospital on October 16th, having gained flesh and colour, and much improved in spirits.

7. The seventh specimen consists of the tubes and ovaries from a case of double salpingitis with suppuration of the right tube, and a small suppurating cyst in the right ovary.

The patient was a married woman, aged 33. The diseased ovary was not much if at all enlarged, only measuring two by one and a quarter inches. It contained two cysts, one of which was filled with serum, the other with thick yellow pus. The tube on the same side was occluded at its distal end, and contained pus. The

appendages on the opposite (left) side were also diseased and adherent; the tube was thickened and occluded at its fimbriated extremity; the ovary contained two tense serous cysts. There was a history of recurrent pelvic peritonitis ever since the second confinement, ten years previously. There had been a very acute attack, with signs also of a hæmatocele in June and July of the present year, from which the patient made a good recovery, remaining well until September 3rd, when she was readmitted with a recurrence of the acute inflammatory symptoms. Dr. Cullingworth then felt certain there was a collection of pus in the pelvis, either in tube or ovary, or both, and therefore proposed abdominal section. The operation was performed September 24th, and the patient left the hospital well on October 22nd.

Dr. Playfair said that he had been struck by the fact that in one of Dr. Cullingworth's cases the opposite tube, although described as being bound down by adhesions, had been allowed to remain. It seemed, of course, conservative practice to limit the operation, when once the painful necessity of operating had been forced on one (for it must always be a painful necessity, and a confession of failure to cure), to the removal of the appendages on one side only. It appears, however, to be very doubtful if such conservatism is wise. In most cases both tubes and ovaries are affected, even when apparently healthy; and if this mutilative operation is to be done at all, it seems better to do it thoroughly. Such, he thought, must certainly be the case if the opposite ovary is bound down by adhesions, as in Dr. Cullingworth's case. Quite recently he had had a very good illustrative case under his care. Two and a half years ago he had operated on a patient for intense and persistent pelvic pain, which quite incapacitated her from all work. On the left side he found a pyosalpinx, which he removed. The right tube appeared healthy, and he left it. The result was that the patient was half cured; the pain on her left side disappeared, but that on the right remained; and so much did she feel partially benefited that she repeatedly begged him to repeat the operation, and remove the other tube also. Six weeks ago, after continuous efforts to afford relief by hot douches, rest, &c., he did so, and since then the patient declares herself quite well, although no very obvious disease was found, beyond a thickening of the tube. On the whole, he was disposed to think that there were very few cases in which, if the operation were justifiable at all, the one-sided one should be performed.

Mr. Alban Doran referred to the question of gonorrhœa in relation to tubal disease. The truth appeared to be that gonorrhœal discharge in the tube was more purely specific and less septic than elsewhere. This probably explained why gonorrhœa was so seldom fatal in women, though it often attacked the tubes, and thence must find its way into the peritoneum. Dr. Bumm, of Würzburg, had first demonstrated that the pyogenic streptococci so common in gonorrhœal discharges in the vagina seldom passed upwards into the tube. Hence he insisted that the pathology of unmixed gonorrhœa might best be studied in the Fallopian tube, where the gonococcus existed alone.

Dr. Cullingworth, in reply, said that he was in complete agreement with Dr. Playfair and Mr. Tait as to the general undesirability and even the risk of leaving the opposite tube unremoved, though it may appear to be healthy, when operating for the removal of unilateral pyosalpinx. In the cases to which he had alluded, in which the opposite tube was left, there were special reasons for the course adopted, especially the density of the adhesions, the separation of which would have added a distinct risk to the operation. We had often, in operating, to choose the lesser of two evils.

HYDRO-HÆMATOSALPINX.

By G. Ernest Herman, M.B., F.R.C.P.

This specimen was described by the above compound name because the contents of the sac—bloody serum—might, with equal correctness, be spoken of as serum or as altered blood. The following was the clinical history.

E. W—, aged 24, single, began to suffer six years ago from headache and bearing-down pains. A doctor examined, and discovered prolapse, for which various pessaries were employed without a satisfactory result. First menstruated at fifteen. Between the ages of sixteen and eighteen was irregular, several times going three months without seeing anything. Lately she has been quite regular, the quantity the same as she has been throughout accustomed to have, and with hardly any pain.

She has had nothing whatever to complain of except the "bearing-down" pain, which was always removed by lying down. This pain has been worse at the menstrual period, but even then has been removed by lying down.

Patient was not wasted nor anæmic. On admission the temperature was 101·4°, and appetite was bad; but the temperature gradually fell, and was normal on the fifth day.

On examination the cervix was seen protruding at the vulva. This was found due mainly to elongation of the infra-vaginal portion, which was about 2½ inches long. The whole length of the uterine canal was 4¾ inches.

On May 8th, 1891, patient was anæsthetised, and the infra-vaginal portion of the cervix was amputated with knife and scissors, the mucous membrane of the cervical canal being sutured to that covering the outside of the cervix. On examination under anæsthesia, a rounded swelling was discovered behind and to the left of the uterus. Its size, its roundness, its separateness from the uterus, and the absence of symptoms led to the opinion that it was a small ovarian tumour. An operation for its removal was, therefore, subsequently advised, and was performed on June 2nd. The tumour was closely attached to the floor of the pelvis. It was tapped, and six ounces of reddish serum drawn off. It was estimated that probably about two ounces more escaped measurement. After emptying the tumour it was brought up, and its pedicle tied with difficulty (owing to its shortness) by two interlocked ligatures. The tumour was then cut away, the ovary being divided in doing so, and part of it left behind in the pedicle. The appendages on the right side were healthy to the touch, and were therefore not interfered with.

The patient made a good recovery, and left the hospital on June 27th.

The tumour consisted of the left Fallopian tube, dilated into a cyst containing reddish serum. Over some parts of its inner wall old clot adhered to it; and at

some places strips of mucous membrane were detached from the submucous tissue, giving the interior an appearance resembling the chordæ tendineæ of the heart. There were a few slight adhesions on its peritoneal surface, but not extensive or firm adhesions. The wall of the tube was greatly thickened, being at the thickest parts three-eighths of an inch thick. The tube was contorted, and it was its outer part which formed the cyst.

On *microscopic examination* of the thickened wall of the tube it was seen to consist mainly of fibro-muscular tissue. Its outer part was thickly infiltrated with leucocytes. It contained thick-walled vessels, and spaces sparsely scattered, like glands devoid of epithelium. There were also distinct glands lined with columnar epithelium. A line of such glands ran right across about the middle of the section, as if here a portion of the mucous surface had been folded in. At the inner part of the wall the tissue was looser and more differentiated, tracts of fibrous tissue being intersected with purely muscular bundles running perpendicularly to the plane of the section. The inner surface was formed of a layer of fibrous tissue more wavy and more deeply stained than the rest. Vessels and gland spaces were more numerous near this surface.

Mr. Bland Sutton had pointed out that some tumours, which had been described as dilated Fallopian tubes with thickened walls, were really dilated cornua of bicorned uteri, and had stated that Fallopian tubes when dilated did not hypertrophy, but became thinned. With this in his mind he (Dr. Herman) had carefully examined this tumour to see if he could find a round ligament or Fallopian tube going off from it, but could not do so. He therefore concluded that it was the tube, and not a uterine cornu. The case was interesting on account of the entire absence of any symptoms, in spite of the great dilatation and thickening of the tube, the amount of which showed that the morbid conditions must have been present a long time; also as an instance of hæmorrhage into one tube

quite apart from pregnancy, tubal or other; for there was no sign of any fœtal structure, and no reason to doubt the patient's virginity.

HYPERTROPHY OF DECIDUA.

By G. Ernest Herman, M.B.Lond., F.R.C.P.

J. G—, aged 30, was admitted into the London Hospital on May 16th, 1891. (For the notes of the case Dr. Herman was indebted to Dr. L. C. Everard Calthrop, Resident Accoucheur, and Mr. F. C. Hales, clinical clerk.) The reason of her admission was that she had a cyst of the right labium majus. This she had noticed for four years, during which time it had steadily been getting larger. It measured, when patient was admitted, about 1½ inches by 1 inch. On May 19th this cyst was dissected out. On May 22nd the patient passed, with hæmorrhage, the specimen now exhibited.

Her previous history was as follows. She first menstruated at sixteen, and was regular, except during pregnancy, every four weeks, the flow being copious and lasting seven days. There was always pain during the flow, ceasing when the flow stopped. She was married at twenty. Her first three pregnancies went to the full term, but the child each time was born dead. These deliveries took place when she was aged twenty-two, twenty-four, and twenty-six. At the age of twenty-seven she had a living child, born at the full time. In no delivery were instruments used. Since the child was born she had had four miscarriages, each of them when about four months pregnant. The last was five months ago.

After the birth of the last stillborn child she had an illness which she described as a "fever." At the time of admission she believed herself to be about three and a half months pregnant.

Nothing could be elicited from the patient which pointed to a history of syphilis beyond the facts above mentioned. Her husband was asked to attend at the hospital, in order that he might be questioned as to his health; but he persistently refused to do so, although the patient said she had done her best to induce him to come. The patient's only living child was seen by Dr. Calthrop, but presented no evidence of disease.

The specimen consisted of the uterine contents. Internally was the amnion, a bag of smooth translucent membrane, at one part of which the umbilical cord was attached. The fœtus, although carefully looked for, was not found. This sac measured $1\frac{3}{4}$ inches from above downwards by $1\frac{1}{4}$ inches across. (These measurements were made after it had been immersed in spirit.) Outside the amnion there was on one side the placenta, on the other the decidua reflexa. Attached to the sac at the junction of the placenta and decidua reflexa was the decidua vera. The placenta had evidently covered one wall of the uterus, the decidua vera the opposite. The placental tissue looked healthy; there was certainly no considerable hæmorrhage into it. The decidua reflexa was a continuous membrane. A piece cut out of it, about halfway between the attachment of the vera and the opposite pole, measured one-fiftieth of an inch in thickness. The decidua vera was thick and fleshy-looking. About half an inch from its junction with the reflexa it was a quarter of an inch thick. A piece was cut out here for microscopical examination. Between this point and the junction with the reflexa there were on the uterine surface of the membrane polypoid growths, some of which projected as much as half an inch from the surface. The part remote from the junction with the reflexa was the thinnest part of it.

Microscopical examination: *Decidua vera.*—This membrane is composed of large lentil-shaped cells with large nuclei, set close together, with little or no intercellular substance. These cells are larger at some places than at

others. The protoplasm of these cells stains, but not so deeply as the nucleus, and the nucleus not so deeply as leucocytes. The nuclei of these cells are about as large as leucocytes, and the cells are big enough to hold five or six of such nuclei. There are a few vessels, and there are many channels and tortuous and irregular spaces. Some of these channels are lined by a single layer of cubical epithelium, and some others present a distinct basement membrane, although an epithelial lining is not present. Some of the spaces are filled with coagulated fibrin. In many parts the tissue is infiltrated with leucocytes, and in most places there are a few leucocytes; but the parts in which leucocytes are thickly present form the smaller part as compared with the larger part in which there are either none, or only thinly scattered leucocytes. The infiltration with leucocytes is chiefly towards the uterine surface of the membrane.

Decidua reflexa.—The piece examined was cut out from opposite the placenta, where the membrane was thinnest. It was here about one-fiftieth of an inch thick. Examining the section from within outwards, there was seen first the amnion, and then a layer containing chorionic villi. Outside this came a layer of tissue, looking like voluntary muscle of which the striation had been lost through decomposition. This tissue Dr. Herman took to be degenerated decidual cells. There were no fat globules visible in it, but as the specimen had been preserved in spirit they might have been visible had it been examined when fresh. This layer formed from one-third to one-sixth of the thickness of the membrane. Outside this the tissue was composed of large lentil-shaped cells with large nuclei, such as formed the decidua vera. Its outer part was thickly infiltrated with leucocytes.

Hypertrophy of the decidua was described by the late Dr. Matthews Duncan ('Researches in Obstetrics,' p. 290). In that paper Dr. Duncan quoted a case published by Virchow ('Archiv,' Band xxi, S. 118) under the name of

"*endometritis papulosa et tuberosa*," and a similar case by Strassmann ('Mon. für Geb.,' Bd. xix, S. 242). But Duncan referred to these cases as "hypertrophy." Other cases like these in their main features had since been described by Dohrn ('Mon. für Geb.,'Bd. xxi, S. 375), Gusserow ('Mon. für Geb.,' Bd. xxvii, S. 321), and Klebs ('Mon. für Geb.,' Bd. xxvii, S. 401), and a similar specimen was shown by Dr. Lewers at a recent meeting of the Society, but an account of its histology had not been given. In all the cases that had been microscopically examined, as in the one now shown, the thickening of the decidua was in the main due to growth of the lentil-shaped decidual cells—as Dohrn put it, "an excessive formation of normal elements;" and the appearances that indicated inflammation were present only in a comparatively small part of the thickened membrane. Dr. Herman therefore thought (notwithstanding the great authority of Virchow) that Duncan was right in calling the condition "hypertrophy." The disease had been said to be due to syphilis, because there was a history pointing to this disease in Virchow's case. But in none of the others was there evidence of syphilis. Dr. Herman therefore thought the facts were against this disease being a manifestation of syphilis. In the specimen now exhibited the polypoid growths were on the uterine aspect of the decidua vera. In Virchow's, Strassmann's and Dohrn's cases they were on the fœtal side of that membrane. But as the histology was in all the cases identical, he thought that this could not be a difference of great importance.

Dr. CHAMPNEYS said that such a combination must be very rare, and yet he had met, at St. George's Hospital, with a precisely similar condition. A virgin had a procidentia of the cervix, depending on supra-vaginal elongation; and this was apparently caused by a smallish ovarian tumour. He treated the procidentia by supra-vaginal amputation, and some time later removed the ovarian tumour. This order of operating was intentional.

Dr. Lewers said that he had shown a very complete specimen of decidua affected by endometritis polyposa with blighted ovum before the Society in the summer (p. 197). In his case the patient was a multipara. There was no history of syphilis, but some evidence of the patient having had pelvic inflammation, apparently due to playing in a tennis-match while menstruating.

A SUPPURATING DERMOID CYST.

By A. D. Leith Napier, M.D.

Dr. Leith Napier showed a suppurating dermoid cyst. The patient, aged 25, was a secundipara; the tumour was first observed after the birth of her first child, about four years ago. Until a short time before operation, on September 24th, the tumour had not caused pain or inconvenience. It was situated on the left side, as high as the iliac crest. There were firm adhesions; the intestines had to be peeled off for over two inches on one side, and fully two inches on the other, and their muscular coats exposed. The rents were stitched in the usual manner. Posteriorly there was a firm inflammatory mass of adhesions as large as the palm of the hand. The left Fallopian tube was thickened and stretched out. The patient made a good recovery.

On examination the tumour proved to be a dermoid of the left ovary, containing a large quantity of dark-coloured hair and the usual cheesy sebaceous matter; the pus was principally, if not wholly, contained in secondary loculi outside the main cyst cavity. The increase of these loculi probably accounted for the rapid enlargement of the tumour which was observed shortly prior to operation.

MACERATED FŒTUS; DOUBLE TUBAL DISEASE.

By A. D. Leith Napier, M.D.

DERMOID CYST OF OVARY.

By J. Shaw Mackenzie, M.D.

SUPPOSED MYXOMATOUS DEGENERATION OF A FIBROID.

By M. Handfield-Jones, M.D.

CASE OF ABORTION IN WHICH THERE OCCURRED SEPARATE PRIMARY AND COMPLETE EXPULSION OF THE UNBROKEN AMNION, ENCLOSING A FŒTUS OF ABOUT FOUR MONTHS' GESTATION.

By Graily Hewitt, M.D., F.R.C.P.

The case occurred in the practice of Mr. E. E. Sass, of Gloucester Place, Portman Square. The first pains were very severe, and the complete amnion was speedily expelled. The specimen exhibited consists of the separate unbroken amnion, containing about an ounce of fluid, together with a well-formed fœtus of about four months.

The remaining structures of the ovum were expelled about twelve hours later. The case is one of great rarity.

Fœtus with amnion complete, expelled in Dr. Graily Hewitt's case.

The umbilical vessels are torn across just outside the amnion. The amniotic bag then escaped through a rent in the chorion and decidua reflexa.

Dr. Herman had some years ago exhibited at the Society a similar specimen,* although at that time he did not know its nature. A specimen of the kind was described by Smellie.†

Mr. Alban Doran observed that Dr. Herman's reference to Smellie's case was of high importance. Dr. Herman had just

* 'Transactions,' vol. xxiii, p. 259.

† New Syd. Soc. edition, vol. ii, p. 66.

related how the embryo was not bigger than a small bean, and was inadvertently left in water for about twelve hours, without spirit; at the end of that period the legs, arms, and greater part of the body were quite dissolved, although the embryo was still covered by the amnion. This fact made it easy for us to understand how rapidly all trace of an embryo might be lost in a case of rupture of the Fallopian tube in early tubal pregnancy. In such cases the presence of chorionic villi in the tubal sac would remain as the sole evidence of pregnancy. Since advanced cases of tubal gestation were so common, we must not be too sceptical about early cases, and deny the existence of pregnancy whenever no embryo—a perishable thing—could be found.

DERMOID CYST OF THE OVARY.

By A. C. Butler-Smythe.

Mr. Alban Doran noted that there was a large patch of skin on the inner wall, but the remainder of that wall simulated serous membrane. This fact suggested the different immediate results which followed the rupture of dermoid cysts. When a patch of true skin communicated with the peritoneum, bladder, or intestine, the result was distressing if not fatal, for in such a case, the epidermic appendages acted as powerful irritants. The exposure of a surface of the inner wall, resembling serous membrane, would, on the other hand, cause little irritation. There would only be a danger if bony spicules grew under the smooth surface.

Report of Committee, nominated April 1st, 1891, on Mr. J. H. Targett's Specimen of Spondylolisthesis in a girl aged sixteen (p. 108).

Your Committee has examined this specimen and confirmed the description of it already published (p. 108). Further dissection has enabled us to make the following additions to that description :—The pedicles of the third, fourth, and fifth lumbar vertebræ are divided at their

junction with the corresponding costal and superior articular processes. The rough extremities of these divided pedicles of the fourth and fifth lumbar vertebræ are widely separated, and occupy different levels, owing to the displacement downwards and forwards of the bodies of the corresponding vertebræ. The interval between the ends of the pedicle of the fourth vertebra is five-eighths of an inch, while that of the fifth measures seven-eighths of an inch. This interval in the neural arch is filled by a strong ligamentous band connecting the displaced ends of the pedicle, and the outer portion of this band has become ossified, so that the bony arch is in effect restored. The ossification on the fourth vertebra is semilunar in shape, measures one inch in length, and extends from the costal process to the central end of the pedicle. In the fifth vertebra it consists of a broad flat plate, an inch and three quarters in length, which extends from the costal process to the body of that vertebra. Immediately below this there is another thin plate of bone, resulting from ossification of ligamentous tissue on the outer side of the lumbo-sacral disc. The interval between the ends of the pedicle in the case of the third vertebra is not more than an eighth of an inch. It is filled with fibrous tissue, and there are deposits of new bone around the divided ends of the pedicle.

The joints between the articular processes of the lower lumbar vertebræ are partially dislocated. The joint between the first inferior and second superior articular processes is practically normal, but each succeeding joint shows an increasing amount of displacement, until that between the last lumbar and the sacrum is reached, in which instance little or no displacement has occurred. The vertical distance between the extremities of the first and second lumbar inferior articular processes is $1\frac{1}{4}$ inches, between the second and third is 1 inch, between the third and fourth is $\frac{7}{8}$ of an inch, and between the fourth and fifth is $\frac{5}{8}$ of an inch. This approximation of the articular processes as well as the laminæ and spines explains the

marked degree of lordosis observed at the post-mortem examination.

The foramina for the anterior divisions of the third, fourth, and fifth lumbar nerves are smaller than normal, and the nerve-trunks were embedded in dense fibrous tissue ; but on histological examination no change in their structure was discovered.

J. H. Targett.
Alfred L. Galabin.
G. E. Herman.
F. H. Champneys.

CHOREA GRAVIDARUM.

By Frederick John McCann, M.B.Edin.,
late resident medical officer, queen charlotte lying-in hospital.

(*Conclusion.*)

The reading of this paper, adjourned at the last meeting, was continued.

Duration of pregnancy.—In the absence of complications this depends entirely on the severity of the disease, the severe cases being very apt to lead to abortion or premature delivery; this result being brought about by the progressive anæmia and exhaustion kept up by want of sleep from which these patients suffer, certainly not the death of the fœtus, which appears to be nourished at the expense of the maternal system, and is often born alive. The effect of treatment must also be borne in mind, for the severity of the symptoms being reduced by appropriate methods, the result to the mother and child is good, as delivery at term sometimes results. In many cases, however, labour has been induced as soon as the symptoms became aggravated. In slight cases of chorea pregnancy progresses favorably, no injurious effect to the fœtus ensuing.

Result to mother.—In severe cases of this disease the risk to the mother's life is great, the mortality being given at 20—25 per cent. This, for the reasons mentioned at the beginning of this paper, does not truly represent the mortality of this disease, but it is doubtless higher than the mortality in the chorea of childhood, in which it is given at 2 per cent.* With regard to the causation of

* B. M. A. Coll. Invest. Com. (9 deaths in 439 cases).

the maternal deaths, it is necessary to recollect that, owing to the cachectic state of the system, delivery, either at term or premature, is more prone to be attended by additional risks, and more liability to septicæmia ; in this relation the delirium which sometimes occurs after delivery may find an explanation in this cause. But the extreme exhaustion which takes place in severe forms of this disease leads to death before the fœtus is delivered. This is brought about by the anæmia, the rapid emaciation occurring in some cases, the intensity of the movements, and in addition the want of sleep wearing out the already exhausted nervous system.

Mania is not infrequently met with as a consequence of severe chorea gravidarum, but also occurs in cases where the choreic movements are slight ; and here liability to mistakes in diagnosis arises. To this special complication of the disease the term maniacal chorea is applied.* At the commencement of the maniacal symptoms the patients are sullen and irritable, having delusions and suspicion of those around them, with complete scepticism as to what they are told about the most simple matters. When the mania is at its height the choreic movements diminish or disappear, reappearing when the patient recovers from the maniacal condition. The duration of the maniacal symptoms in recorded cases varies usually from three days to six weeks, when complete recovery may ensue, or the patient remain dull, apathetic, listless, and disinclined to speak, sometimes with persistent hallucinations. This condition passes away slowly, occasionally persisting for weeks or months, and may even become permanent. *Delirium,* with frequent screaming, as in the case recorded by Simpson, is sometimes met with in the course of this disease.

Paralysis.—Post-choreic paralyses of one or more limbs

* Being distinguished from ordinary mania by the fact that during the disease the patients are not so talkative. This variety is very rare in the male sex—another instance of the severity of the disease in the female.

have been recorded as results of chorea, with in some cases impaired sensibility, the condition passing away in the course of a few weeks. It may be mentioned that a form of chorea called "paralytic chorea," described by Gowers,* exists in childhood, affecting only one or other of the arms.

Result to child.—The danger to the child is chiefly due to abortion or premature labour in severe cases; if the case be slight, and the patient be delivered at term, the risk to the child is no more than in a normal labour. Chorea is stated to affect newly born children, constituting the so-called congenital chorea;† but from the nature of this disease it is difficult to understand how it could affect a newly-born child. Convulsions of a tetanoid character often connected with different forms of irritation at the umbilicus, also diseased conditions of the brain and cerebral meninges, may possibly explain some of these cases. Almost all infants exhibit slow and rhythmical movements‡ for many days after birth, evidently a continuation of the movements *in utero*. Many of the children born of a choreic mother suffer from chorea in childhood because of the hereditary predisposition.

Period of cessation of choreic movements.—The exact determination of this point depends entirely on the accuracy of the observer, for occasional choreic twitchings may be observed long after the patients are supposed to be cured. In the chorea of pregnancy which is kept up by the pregnant condition, it is natural to suppose that when

* 'Brit. Med. Journ.,' April 23rd, 1881.

† Mayo, 'Outlines of Pathology,' p. 170; Heller, 'Wiener medizinische Wochenschrift,' 1876, No. 19; 'Brit. Med. Journ.,' 1873, p. 653, by Long Fox. In the cases recorded by Mayo and Long Fox the children were imbecile. Movements similar to those of chorea are met with in cases of congenital brain disease; this, however, is not true chorea.

Richter ('Sitzungsberichte der Dresdener Gesellschaft für Natur- und Heilkunde,' 5th Jan., 1867), quoted by Ziemssen, records two cases of congenital chorea.

Cases of infants at the breast by Simon and Constant.

‡ These I have observed repeatedly.

that condition terminates the choreic movements should cease; and some observers have recorded cases ceasing with the advent of labour, others during the second stage —the majority, however, after complete delivery. But in all the cases observed by myself the choreic movements, although greatly diminished, did not entirely cease after labour; and it is highly improbable that true chorea gravidarum ever ceases as rapidly as the recorded cases show, but nevertheless the cessation is more rapid than in the chorea of childhood simply because the cause has been removed. The disease may be diminished during pregnancy by appropriate treatment, or as a result of improvement in the general health; but it is questionable whether true chorea disappears entirely until and after the termination of pregnancy, although cases are recorded where it is stated that the movements ceased some weeks before delivery. The diminution of the movements after delivery at term or prematurely is doubtless due in part to the mental and bodily relief which follows delivery under ordinary circumstances, and which must have a sedative effect on the nervous system. In addition one important source of irritation, namely, the fœtal movements, is got rid of; but, as we have, as explained in speaking of the causation of the disease, to deal with an altered condition of the blood and of the nervous system, sufficient time must elapse in order to allow a process of repair to go on, resulting in a return to the normal state. On these grounds, then, it is difficult to see how choreiform movements, except of a very slight degree of severity, could cease after completion of the delivery. Although the movements diminish after delivery, they very often recur with increased force during the puerperal state; and it is possible that some cases of chorea recorded as coming on after delivery were cases of this description, in which the previous symptoms, being slight, had been overlooked. The cause of increased movements during the puerperium is often traceable to some source of irritation, as in the previous cases; the influence of suckling must also here

be borne in mind.* In Case 2, total cessation of the movements did not take place until five months after delivery, and in Case 5 I saw the patient three months after delivery, and choreic movements of the facial muscles, although very slight, were still perceptible; but in this case the patient was also suffering from epileptic fits at intervals, which would no doubt have a tendency to keep up the chorea, owing to the close relation of the two diseases. In all probability, if cases are carefully observed, it will be found that the choreic movements exist for a much longer period after delivery than is supposed. No doubt the period of cessation will be more prolonged in those patients who suffered from chorea up to the time of pregnancy, as in the case referred to (Case 5.)

Recurrence.—In cases where chorea has occurred in childhood a recurrence of the disease is almost certain to take place during pregnancy; cases are, however, recorded in which the first pregnancy was free from chorea, although chorea had occurred in childhood, the disease showing itself in the second pregnancy,† as in Mosler's case; but here rheumatic fever occurred between the pregnancies, as in other cases of Richardson and Romberg. As previously noted, in most cases the patient's statement is the source of information, so that accurate observations on this point are still required. Out of four cases occurring in two successive pregnancies, in two the disease was worst during the first pregnancy, in the other two during the second pregnancy, all the patients having suffered from chorea in their youth. A good example of recurrence in successive pregnancies is found in the case recorded by Lawson Tait,‡ in which the disease recurred in four pregnancies with increasing severity, terminating fatally after induction

* It may be mentioned that, in several cases where death occurred after delivery, marked increase of the choreic movements took place before the fatal issue. During the puerperal state the beneficial effects of complete rest in bed must be kept in mind, as the disease often becomes aggravated when the patients assume the erect position.

† Mosler, 'Virchow's Archiv,' 1862; Richardson, op. cit.; Romberg, op. cit.

‡ Op. cit.

of labour: in this instance the patient had suffered from chorea and rheumatic fever during childhood. As far as can be judged from the limited number of recorded cases, chorea gravidarum appears to resemble closely ordinary chorea, in which the relapses may be more severe or in many examples less severe than the first attacks, so that no definite rule can be laid down. A patient whose case is recorded by Romberg,† and who had suffered from chorea during her first two pregnancies, escaped in the third and fourth pregnancies. Those who have suffered from chorea in youth are more liable to suffer from a recurrence of the disease in successive pregnancies, and more especially those in whom the chorea is severe. If the chorea be slight during the first pregnancy, it may or may not recur during the second or subsequent pregnancies. Probably the age of the patient has an influence on the frequency of recurrence; the younger the patient is during the first pregnancy, the greater the liability to recurrence in subsequent pregnancies. But more information is needed before coming to a conclusion on this point.

Relation to menstruation.—In considering this subject there is at once the difficulty in distinguishing between cause and effect; and with increasing knowledge obstetricians are coming more and more to the belief that menstrual disorders are the effect rather than the cause of certain diseases. Much that is absurd has been written on this subject, and the fallacies which observers have fallen into are due to a want of considering the entire bodily constitution of a patient, and instead looking upon the disorders of the genital organs as the all-important causes of disease; but at the present time these ideas are being gradually uprooted, with the result that menstrual disorders are looked upon in many cases as symptoms of more important disease in other parts of the body. Now chorea is supposed to have an important relation to the menstrual function, in that its first appearance is usually at that period of life when that function is springing into

* Op. cit.

activity; but we must bear in mind that at this time important changes occur in the general bodily constitution and conformation, and that the nervous system necessarily takes part in these changes. The nervous system at this period in both sexes, but especially in the female, is more impressionable; and hence a disease such as chorea, so closely related in one form to a functional disorder, is more liable to occur. The Brit. Med. Assoc. Coll. Med. Com. has given the following table of the numbers of males and females affected at various ages :

	Males.	Females.
From 6 to 10 years	40 per cent.	31 per cent.
„ 11 „ 15 „	42 „	43 „
„ 16 „ 20 „	13 „	17 „

From six to ten years the number of males preponderates, *i. e.* before the sexual functions develop. But before five years six cases are recorded, and the greater stress falls on females; but the numbers are probably too small to arrive at any conclusion.

It will be observed from the above table that most cases occur about the period of puberty in both sexes, but a larger proportion belongs to the female sex; however, below five years of age that sex is again in excess, so that altogether the female is more liable to be affected by the disease—no doubt due to the fact that the nervous system is more easily deranged. And in this connection it should be remembered that rheumatic fever is commoner in males, which also goes to strengthen the view that the more susceptible nervous system in the female is a most important factor in the causation. Amenorrhœa and irregular menstruation have been frequently noted in cases of chorea; but these conditions are doubtless dependent upon the anæmia so often present in this disease, either preceding it or developed as a consequence of its severity. It has also been further stated that with the establishment of menstruation the chorea has ceased. But it must be remembered that as the general nutrition improves the chorea is liable to disappear, and menstruation to become re-estab-

lished; and if by any chance menstruation should occur, unaccompanied by this improvement in the general nutrition, the chorea would become worse during the menstrual period, as in Case 5. This is precisely what occurs in phthisical and amenorrhagic insanities, where, if menstruation occur unaccompanied by improvement in the general nutrition, the result is that during the menstrual period the disease becomes aggravated. Again, it is stated that it is the amenorrhœa of pregnancy which gives rise to the chorea; but, as is well known, we have numerous changes in the blood and nervous system to furnish explanations of the causation of this disease, without falling back on the fact that during pregnancy we have to deal with a physiological amenorrhœa. It is natural, then, to suppose that at the period of puberty we should meet with this disease most frequently, because the establishment of menstruation is only a portion of the change which the entire system, and especially the nervous system, undergoes at this period.

Post-puerperal chorea.—Cases of this description have been recorded by Romberg,* Ogle,† Séc;‡ and a case of Chorée Hystérique, the chorea major of the Germans, is recorded by Charcot§ (this is a different disease from that under consideration in the present paper; and in this particular case the patient exhibited movements of the arms as in hammering, the affection spreading later to the legs). As previously stated, an increase of symptoms during the puerperium is not uncommon in the chorea of pregnancy; and it is conceivable that such cases may be classified as post-puerperal where the choreic symptoms during pregnancy were slight, or had been overlooked. In the recorded cases, which are very incomplete, the age of the patients was higher than usually occurs. In the case observed by Séc the patient

* 'Klinische Ergebnisse,' 1846, p. 20.

† 'British and Foreign Med.-Chir. Review.'

‡ 'Mém. de l'Acad. de Méd.,' 1850, t. xv, p. 373.

§ 'Maladies du Système nerveux,' tome iii, 1883–7.

had suffered from chorea in her youth, and would certainly be predisposed to recurrence during pregnancy. In Romberg's case the patient is said to have suffered for eight years from chorea, resulting from a heavy labour; this, then, would be an example of persistent chorea, which is rare in the female sex, but as full details are not furnished we are not justified in drawing conclusions. In Ogle's case the patient suffered from "movements after her last confinement, worse when recumbent and when her headache was bad." She had an attack of rheumatic fever, and after her recovery violent chorea set in, from which she died exhausted. It is not yet definitely settled that this form of the disease exists; but if it be so, it will be found to be an extremely rare occurrence. It must be definitely shown that no symptoms of chorea existed during the previous pregnancy or labour, and that the attack has a causal relation to the pregnancy occurring not later than six weeks after delivery, as it may be confounded with adult chorea, which occurs independent of pregnancy. The information relating to the whole subject is still incomplete, requiring further investigation. An hysterical variety occurring after delivery no doubt is sometimes met with, and this must be carefully excluded before coming to a conclusion as to the nature of the disease.

Diagnosis.—The chief difficulty which arises here is to distinguish true chorea gravidarum, on the one hand from hysterical chorea, and on the other, from the mixed forms previously referred to. The chief point to place reliance upon in true chorea is the character of the movements, which are (*a*) irregular and spasmodic, *not rhythmical;* (*b*) increased by emotion and voluntary effort, especially if it requires sustained action. In the hysterical form the movements are sudden, isolated, and shock-like, often rhythmical, which is a very important distinction, and is especially seen in the movements of the fingers. This variety is never so intense as the true form, and in all probability ceases sooner, although hysterical

chorea occurring in the non-pregnant state lasts for many months, its average duration being greater than that of the ordinary form (Gowers). A possible origin by imitation should be inquired into, as also the occurrence of former hysterical attacks, together with close observation as to the presence or absence of hysterical manifestations. The diagnosis will always be attended with difficulty, and require careful considerationof the features of each case before coming to a conclusion. The fact that chorea occurs in hysterical patients, and that patients with chorea may have hysterical manifestations, shows at once that mixed forms of these diseases must occur, and under this head are included those recorded cases where such affections of sensation as numbness and hemi-anæsthesia were observed; but in such examples we must be absolutely certain that the movements exhibited by the patient are those of true chorea. Cases published in which the movements were confined to the lower limbs only are probably not instances of chorea; but in this relation it may be mentioned that the affection known as "fidgets," which sometimes occurs during pregnancy, and may increase so as to give alarm, but which is also met with in the non-pregnant condition as a result of gastro-duodenal catarrh, may give rise to errors in diagnosis unless the disease be understood. In chorea the rule in diagnosis that the observer should never judge by one sign or by one symptom must be diligently adhered to in order to arrive at a satisfactory decision as to the nature of the case.

Maniacal chorea is distinguished from ordinary mania by the fact that there exists in many cases a previous history of choreiform movements, but the movements in other cases may be very slight or entirely suppressed, thus leading to difficulty in diagnosis. Here, again, close observation as to the presence or absence of choreic twitchings is required. It is interesting to note that in some cases of ordinary insanity choreic movements have been observed. The most prominent distinction between maniacal chorea

and mania is that the patients in the former are more talkative and not so sullen. The delusions also in many cases have the special character before referred to. Hysteroid convulsions might be mistaken for chorea, but the character of the movements is entirely different.

Prognosis.—The prognosis as to life and mental deterioration in the chorea of pregnancy is more serious than in ordinary chorea,* the mortality, as before stated, being certainly higher. The chief dangers are from violence of movements, want of sleep with consequent exhaustion, and intercurrent complications.

In slight forms of that disease, and in hysterical chorea, the prognosis is good, both for the mother and child. In severe forms, however, the prognosis as to life is more serious for the mother ; and as the labour very often terminates prematurely, the risks to the child are proportionately greater.

Opinions as to the prognosis depend entirely on the severity of the disease, and as during pregnancy we see cases of chorea in its most severe form, in these the prognosis is serious, but in slight cases the prognosis is good, and the pregnancy goes on uninterrupted.

In maniacal chorea recovery from the mental condition generally results, but in a few cases a mental defect remains for a lengthened period, which may ultimately become permanent.

The presence of other complications in the course of this disease, such as pyæmia or septicæmia, the former as a result of the numerous abrasions occurring over the trunk and extremities in severe cases, render the prognosis much more serious. If endocarditis be present, we have added to an already serious disease all the dangers of heart disease during pregnancy, in which the prognosis apart from chorea is grave. We must then be guided not

* A case of a peculiar convulsive seizure during pregnancy is reported by Trousseau ('Clinical Medicine'), also recurring after pregnancy (vol. i, 1867, English edit.). This seems to be a unique case, as it is stated that Trousseau was unable to say what the nature of the malady was.

so much by the fact that chorea exists, but by the severity of the chorea, in giving an opinion. In a relapse in ordinary chorea the prognosis is rather better. In the chorea of pregnancies some relapses are more severe, others less so; but it is difficult, owing to the small number of cases, to give a definite opinion.

Treatment.—Many so-called specifics have been introduced from time to time in the treatment of this disease, but their very number clearly shows that they do not stand the test of time and experience; among these may be mentioned hyoscyamin, cannabis indica, henbane, conium, Calabar bean, cimicifuga, &c.

But before considering what remedies are specially valuable it is necessary first to look to what are due indications for the treatment of chorea. And foremost among these comes the obtaining of rest, bodily and mental; second, improvement of the condition of the blood; third, to procure sleep; fourth, protection from friction to the skin caused by the severity of the movements.

Firstly, it is of the greatest importance in this disease that the patient should be kept at rest—not completely confined to bed, unless this be rendered necessary by violent movements of the lower extremities, but making as little effort as possible; in addition to this, freedom from mental excitement and worry. As far as these are obtainable, rest is of the greatest benefit in the treatment of chorea, many cases improving without any other means of relief, which must be kept in mind before ascribing a beneficial result to medicines administered. Change of scene in the upper classes and admission into hospitals in the lower classes, so that the surroundings are changed, will be found beneficial in this as in other disorders of the nervous system.

Secondly, in improving the condition of the blood, iron will be found of immense advantage. Arsenic, also recommended by Romberg, is useful, and is supposed to have a special curative effect in this disease. I have seen good

results in the chorea of children from this drug, but it was difficult to know how much of the cure was due to rest in bed. Good nourishing diet is also helpful in obtaining this object. Bowels should be kept acting regularly; diaphoretics should be used if the skin be dry.

Thirdly, in procuring sleep, *the drug* to be relied upon is chloral, which has been found beneficial in so many cases, especially in the case published by Russell,* given in doses of thirty to forty grains, repeated as necessity requires.† This drug is warmly advocated by v. Ziemssen.‡ When the choreic movements are very violent chloroform§ will be found useful, and helps to give the patient rest while under the influence of the drug; its effect may be kept up by chloral. Bromide of potassium and morphia are used, but do not seem to yield good results.

Fourthly, abrasions of the skin and abscesses, as in the cases at the commencement of this paper, so frequently occur where the movements are violent, that it is absolutely necessary for the patients to sleep in padded beds. If the movements be so violent as to throw the patient out of bed, then it will be necessary for her to sleep on a mattress laid on the floor, the walls of the room being also padded. A water-bed will be found useful when bedsores appear.

Among other methods of treatment, strychnine, first recommended by Trousseau,‖ and also advocated by Gowers, is used; it should be pushed till symptoms of poisoning manifest themselves, and appears to have been beneficial in the recorded cases.‖ Complications must be treated on general principles. Salicylate of soda has been recommended by Weir Mitchell, on the supposition

* 'Med. Times and Gazette.'

† Professor Gairdner ('Glasgow Medical Journal,' 1870) relates a case in which a girl eight years of age took by mistake sixty instead of twenty grains of chloral, and after recovery from her intoxication her chorea had disappeared. Frerichs gave eighty grains to an adult.

‡ 'Cyclopædia of the Practice of Medicine,' vol. xiv.

§ Recommended by Sir James Simpson.

‖ 'Clin. Med.,' translation by Syd. Soc.

that chorea is rheumatic. Wet packing (von Ziemssen) and freezing the spine are also used; the latter gives good results in the chorea of children. In all probability these remedies act chiefly on the emotion.

Coming to the purely obstetrical part of the treatment, it is necessary to take special care during labour and after delivery that there be no excess of hæmorrhage, as the majority of the patients are already anæmic, and are, in consequence, unable to suffer blood-loss. Owing to the violence of the choreic movements it is often extremely difficult to keep the uterus under control during the third stage and after delivery. During delivery, also, careful antiseptic precautions should be observed, as the risk of septicæmia is greater in this disease owing to the fact that the patients are already considerably reduced in strength.

In cases where the choreic movements persist after delivery, suckling should be prohibited, as it undoubtedly tends to aggravate the disease. In the majority of cases, however, it is already contra-indicated, owing to the exhausted state of the patients. The most important consideration is, should pregnancy be terminated prematurely? If the chorea be slight or of the hysterical form, pregnancy should not be interfered with, even although it is known that a cessation of the pregnancy will be attended by diminution of the disease, and that the disease is solely kept up thereby. But in many cases the induction of premature labour is urgent and necessary.

1. Where the mother's system is showing signs of exhaustion from the intensity of the movements and the deficiency of sleep, and where a continuance of the pregnant state is dangerous.

2. Where mania or a serious mental affection exists.*

3. Where grave complications, such as heart disease, exist.

* In almost every case there is some mental affection, but induction of labour is only indicated where this becomes serious.

But it is most important in the consideration of this question that the practitioner be sure of the diagnosis, as induction of labour is not indicated in the hysterical forms of the disease unless they are of exceptional severity. It will thus be apparent that in a large proportion of cases of chorea gravidarum pregnancy may be allowed to go on uninterruptedly.

Dilatation of the os uteri has been recommended by Wade,* but it is difficult to see how this form of treatment can be of any service.

Statistics.—In the compilation of the following tables only those cases are included of which complete records were published, and whose nature was thereby placed beyond doubt.

Age at which chorea occurred.—Out of 37 cases, at seventeen, 3 ; at eighteen, 4 ; at nineteen, 6 ; at twenty, 11 ; at twenty-one, 2 ; at twenty-two, 3 ; at twenty-three, 3 ; at twenty-four, 1 ; at twenty-five, 1 ; at twenty-six, 3.

Period of occurrence.—Out of 36 attacks, 1st month, 2 ; 2nd month, 6 ; 2½ months, 1 ; 3rd month, 6 ; 3½ months, 2 ; 4th month, 7 ; 5th month, 4 ; 5½ months, 2 ; 6th month, 3 ; 6½ months, 1 ; 7th month, 1 ; 8th month, 0 ; 9th month, 1.

Causation.—Out of 34 cases, chorea previously, 11 ; rheumatic and scarlet fevers, 2 ; rheumatic fever alone, 2 ; fright only cause stated, 2 ; no cause stated, 4 (in one of the cases one sister had rheumatic fever ; in another, chorea and rheumatism existed in the family) ; rheumatic fever and fright, 1 ; rheumatic fever and chorea, 7 ; scarlet fever, rheumatic fever, and chorea, 1 ; chorea and fright, 3 ; mental distress owing to pregnancy, 1.

Duration of pregnancy.—In 32 attacks in which there was no artificial interference, delivery at term, 26 ; miscarriage at fourth month (accidental hæmorrhage), 1 ; miscarriage at fifth month, 1 ; miscarriage at sixth month, 4.

Result to mother.—Out of 39 cases, delirium or mania

* Op. cit.

occurred in 8 ; mania or delirium cured in 4 ; mania or delirium followed by death in 3 ; death from exhaustion in 3 ; death from puerperal peritonitis, 1. Recovery in 32.

Among the 7 fatal cases, the following additional facts are to be noted :

(1) Aged 20, first pregnancy, chorea appeared at three and a half months—movements bilateral—died exhausted. No history.*

(2) Aged 20, first pregnancy, rheumatic and scarlet fevers at sixteen. Chorea appeared at third month, bilateral. Delirium followed by death, disease having lasted two months. No family history.†

(3) Aged 24, first pregnancy, scarlet fever, rheumatic fever, and chorea in youth. Chorea began at second month. Exciting cause, shock. Premature labour induced—chorea still continued—died of exhaustion. Chorea and rheumatism in the family.‡

(4) Aged 17, first pregnancy. Mind much distressed in consequence. Duration of disease not stated. Delirium and mania followed by death. Four months fœtus *in utero*. No history.§

(5) Aged 21, first pregnancy, normal, at nineteen. No history. Chorea appeared at fifth month of her second pregnancy due to severe terror ; delirium, mania, and death resulting. Delivery occurred spontaneously.‖

(6) Aged 27, fourth pregnancy. Father and mother rheumatic. Had rheumatic fever followed by chorea at fifteen years of age. Chorea recurred in each pregnancy. Died comatose.¶

(7) Aged 22, second pregnancy. Chorea at eight—two attacks at sixteen. Reappeared at sixth month of first

* Prince, op. cit.
† Simpson, A. R., op. cit.
‡ No. 20, 6, B. M. A. Col. Invest. Com.
§ Ogle, 'Brit. and Foreign Med.-Chir. Review.'
‖ Aran, 'L'Union Médicale,' 1851.
¶ Tait, op. cit.

pregnancy, delivery at full term. Appeared again during second pregnancy at the fifth month. Child stillborn. Mother died of puerperal peritonitis.*

In conclusion my thanks are due to Drs. Hope and Grigg for permission to make use of the cases of chorea gravidarum admitted into the Queen Charlotte Lying-in Hospital.

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* The case described by Mayo, and quoted by various authors as chorea gravidarum, is one of supposed chorea affecting the child at birth, the mother exhibiting no symptoms of this disease.

Dr. Herman said that this long, elaborate, and valuable paper covered so much ground that he could only comment on a few points. He saw no reason for attributing chorea to a blood-change. The same blood circulated on both sides of the body, and therefore the phenomena of blood diseases must be symmetrical. One-sided phenomena, like those of chorea, must be due to change in one side of the brain. There might be some blood-change in chorea, but if so, nothing was known about it. He found it difficult to accept the author's assertion that "in cases where chorea has occurred in childhood a recurrence is almost certain to take place in pregnancy." Chorea in female children was a common disease; and if it always entailed chorea in subsequent pregnancy, cases of chorea in pregnancy ought to be commoner than they are. Dr. Savage had spoken strongly of the bad effect of chloral in puerperal mania; and from analogy he (Dr. Herman) should fear that if it were given for chorea in large doses, and for considerable periods, its depressing effect would do harm. He thought the great thing in treatment was food, and the best sedative alcohol.

Dr. Playfair said that it was obviously impossible to criticise at any length so extensive a paper. The author had apparently gone over the whole subject of chorea in all its branches, whether connected with pregnancy or not. There was only one point on which he would like to say a few words. The disease was described as divisible into three classes—true chorea, hysterical chorea, and a mixed kind, partly true and partly hysterical. Probably this was not Dr. McCann's own division, and it seemed to be one of those book descriptions which was probably not borne out by clinical facts. He very much doubted whether there existed, at least in connection with pregnancy, any form of disease which could properly be classed as hysterical chorea as contra-distinguished from the real disease; and if so, he doubted the existence of a separate disease called hysterical chorea. *A fortiori* he questioned the description of the mixed type, about which, however, the author expressed no doubt. Certainly a choreic patient, who was essentially a neurotic, might show certain symptoms which might fairly be described as hysteric, but that did not justify us in calling her complaint hysterical chorea. On the other hand, a markedly hysterical patient might exhibit localised spasm or contraction, and the like, which, however, did not constitute chorea, and could readily be distinguished from it. Probably this classification was something like the old description of puerperal convulsions, hysterical convulsions, and apoplectic convulsions, which were so described in all our text-books until a recent date. One author after another copied the description into their works, but accurate clinical investigation has long since shown us that there is but one form of puerperal convul-

sion, and not three. So probably would it be with the three kinds of chorea Dr. McCann talks of. Farther on he mentions a fourth type, although he does not admit it into his original description of the disease, viz. maniacal chorea. Now when a puerperal choreic patient develops delusions of suspicion, suicide, &c., such as the author mentions, surely that is another neurosis, insanity, engrafted on the pre-existing chorea. But it is a distinct and additional disease, and does not seem to justify the diagnosis of maniacal chorea. He (Dr. Playfair) had seen a few cases of chorea in pregnancy, and very formidable cases they were; and he had also seen very marked hysterical manifestations in pregnancy, but he had never seen any form of disease which would justify the dubious classification which Dr. McCann laid down as certainly existing.

Dr. Horrocks said that the most important fact in reference to the prognosis of chorea, whether in the pregnant woman or not, was the temperature. As long as this was normal it did not matter how severe the case might be, for the patient would in all probability recover. But if the temperature began to rise, then there was danger to life. He asked if any observations had been made on the temperature.

Dr. Champneys said that, in the criticisms on Dr. McCann's paper, he had missed the words of appreciation; the omission, he felt sure, was not intentional on the part of the speakers. These words he ventured to add, expressing the opinion that the paper was a most valuable addition to our 'Transactions,' and like the recent paper by Dr. Spencer, should be cordially welcomed. As regarded Dr. Playfair's criticism, in a disease like chorea, in which the affection was partly mental, it was impossible, he thought, to say where chorea ended and insanity began. Applying Dr. Playfair's own words, just spoken, to the present point, he would say that subdivisions could be multiplied too much, and that he should prefer the term "maniacal chorea," used by the author, to that proposed by Dr. Playfair, "chorea and mania."

Dr. McCann, in reply, thanked the Fellows of the Society for the hearty reception given to his paper. He stated that chorea was not entirely a blood disease, nor could we ascribe too much importance to any single factor in its production, but must consider, as described in his paper, several factors in explanation of this disease. As to recurrence during pregnancy, he pointed out that many of the slight cases may be overlooked. Authorities were agreed that a form known as hysterical chorea could be differentiated from the true disease, and that mania developing as a consequence of a severe attack of chorea gravidarum was quite distinct from the ordinary puerperal mania.

A CASE SHOWING THE BEHAVIOUR OF THE PREGNANT UTERUS IN CHOREA.

By J. Braxton Hicks, M.D.Lond., F.R.C.P.Lond.,

CONSULTING OBSTETRIC PHYSICIAN TO GUY'S HOSPITAL; OBSTETRIC PHYSICIAN AND LECTURER AT ST. MARY'S HOSPITAL, LONDON; PAST PRESIDENT OF THE OBSTETRICAL SOCIETY, LONDON, AND HUNTERIAN SOCIETY, ETC.

(Received October 22nd, 1891.)

In March, 1889, a young single woman, who had suffered from chorea in childhood, was brought into my ward at St. Mary's Hospital suffering from chorea. It was supposed that she was pregnant because amenorrhœa had existed some four months. There was a swelling in the lower abdomen reaching to the umbilicus, which was clearly the uterus, but the shape was unsymmetrical, an oval hard lump being on its upper left side. This was evidently not in the abdominal muscles. There was no pain nor tenderness there. On examining the next day this swelling had disappeared, and on the other side lower down another hard lump was felt in what was evidently the uterus. This, after a day or two, subsided, and so on during the time of her residence in the hospital this and similar variations of hardness were noticed in the uterus. She left in about a month; the chorea having been much mitigated by the rest and use of arsenic. She then had a considerable amount of albuminuria, which remained up to the time of delivery, and after, though much less; there was all the time a systolic bruit over the heart; the choreic movements also continued throughout pregnancy.

I may add that during labour nothing unusual was observed by Dr. Savill, Resident Medical Officer of the Paddington Infirmary (to whose kindness I am indebted

for the notes of the case after the patient left my care), and she made an apparently good recovery. This condition of the uterus during pregnancy with chorea, I believe, has not hitherto been observed, though the heart and diaphragm have been suspected to have like movements; and it seems to me worthy of record, both in relation to chorea and also to the intermittent contractions of the uterus to which I have many times drawn attention.

DECEMBER 2ND, 1891.

J. WATT BLACK, M.D., President, in the Chair.

Present—50 Fellows and 6 visitors.

Books were presented by Sir H. W. Acland, K.C.B., Dr. Gusserow, Dr. Herman, Mr. J. Bland Sutton, and Dr. B. S. Schultze.

Lionel C. Everard Calthrop, L.R.C.P.Lond., was admitted a Fellow of the Society.

Bertram C. A. Windle, M.A., M.D., B.Ch.Dublin (Birmingham), was declared admitted.

The following gentlemen were proposed for election :— Sydney Beauchamp, M.B., B.C.Cantab. ; Matthew Mitchell Bird, M.D., B.S.Durh. ; William Arthur Bond, M.A., M.D., B.S.Cantab. ; William Haig Brodie, M.D., C.M.Edin.; John Morgan Evans, L.R.C.P.Lond. (Llandrindod Wells) ; William Gardner, M.B., C.M.Glas. (Melbourne) ; George Arthur Hawkins-Ambler, F.R.C.S.Ed. (Clifton) ; Thomas Hyde Hills, L.R.C.P.Lond. (Cambridge) ; Ernest Kingscote, M.B., C.M.Edin. (Salisbury) ; John Cavendish Molson, L.R.C.P.Lond. (Wimbledon) ; Domingo Montbrun, M.D. (Trinidad) ; Charles Hubert Roberts, L.R.C.P.Lond. ; Thomas Jenner Verrall, L.R.C.P.Lond. (Brighton) ; and Thomas Wilson, M.D., B.S.Lond. (Wolverhampton).

RETROFLEXION AND ECTOPIA VISCERUM.

By John Phillips, M.A., M.D.Cantab.

Dr. John Phillips showed a retroflexed fœtus with ectopia viscerum and spinal meningocele : there was no lateriflexion, as in Dr. Dakin's case ('Obstet. Trans.,' vol. xxxi, p. 308). Extreme talipes varus of left foot and talipes calcaneus of right foot were present, apparently as results of pressure. The sex of the fœtus was doubtful, a small tubercle at the junction of the thigh and abdomen on either side being the only representatives of external genitalia.

The labour occurred at the commencement of the eighth month of pregnancy, and was preceded by considerable hæmorrhage. The first stage was twelve hours in duration, the second three and a half hours. The vertex presented, and no dystocia followed. The placenta, which was normal in appearance, was expelled naturally in ten minutes ; and the cord, although only 4½ inches long, was quite properly formed.

The family history was negative ; the mother was twenty-six years of age, and had had four healthy full-term children previously.

Dr. Phillips referred the specimen to St. Hilaire's class "Cœlosomien," genus "Agenosome;" *i. e.* lateral or median eventration, principally occupying the lower abdomen ; different limb anomalies ; genital and urinary organs absent or rudimentary. The fœtus would be carefully dissected, and a full report made to the Society.

RUPTURED UTERUS.

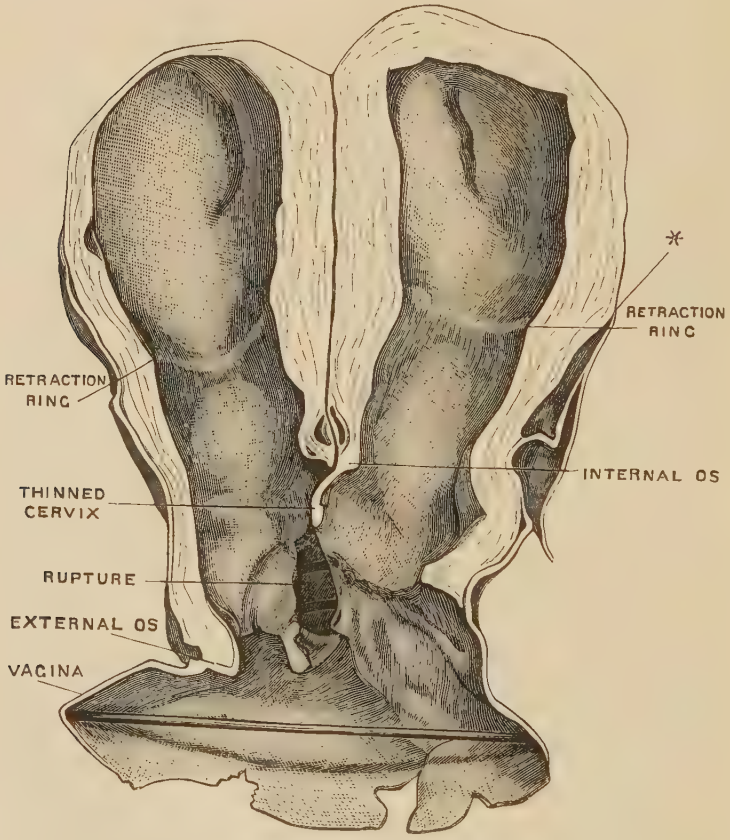
By G. Ernest Herman, M.B., F.R.C.P.

The specimen exhibited had been sent to the museum of the London Hospital by the late Dr. Palfrey, without any clinical history.

There was a transverse rupture across the anterior wall of the cervix. For an inch above the place of rupture the uterine wall was nowhere more than $\frac{1}{4}$ of an inch thick. The greatest thickness of the uterus was $3\frac{1}{2}$ inches above the place of rupture, and from this point downwards it gradually got thinner up to an inch above the rupture. At the thickest part the wall of the uterus was an inch thick. The peritoneum could be easily stripped off the uterus from below up to this point, the ring of greatest thickness being about the line at which the peritoneum became firmly attached. At this level a circular ridge could be seen projecting into the uterine cavity. The upper part of the uterus was nearly an inch thick. The posterior uterine wall measured $4\frac{1}{2}$ inches in length below the place of greatest thickness. The specimen was shrunken from the action of spirit before these measurements were made.

The specimen was interesting in its bearing on the situation of the retraction-ring, or ring of Bandl. Some observers had described uteri in which the situation of this ring was identical with the internal os. In other specimens it was evidently much higher up. The specimen now exhibited suggested a mode of harmonising these apparently irreconcilable observations. If it were the case that in obstructed labour the body of the uterus contracted, and the cervix became stretched and thinned, and then gave way, we should have a specimen showing the retraction-ring coinciding with the internal os. But

supposing that rupture of the cervix did not take place, and that, obstruction to delivery continuing, the lower segment of the uterus (meaning by that the part between the os internum and the line of firm attachment of peri-



* Line of firm attachment of peritoneum.

Dr. Herman's case of ruptured uterus. (Drawn by Mr. H. Tonks.)

toneum) in its turn became stretched and thinned like the cervix, and at length gave way, then we should have a specimen showing the retraction-ring higher up than the cervix. The specimen now exhibited seemed to show

this latter process in progress,—the lower segment of the uterus thinning from below upwards, and the retraction-ring forming at about the level of firm attachment of peritoneum.

Dr. Walter Griffith said that there was so much uncertainty and difference of opinion, as to what constituted "Bandl's ring," that it appeared to him to be unsatisfactory to discuss Dr. Herman's opinion of this specimen unless all were agreed as to the definition of the term "contraction-ring," which had been used by Dr. Herman as being perhaps the same thing. Dr. Griffith did not feel satisfied that the ridge which was the thickest portion, and situated nearly in the middle of the retracted wall of the body of the uterus, was the contraction-ring; it might, however, be Bandl's ring.

Dr. Herman understood by the term "retraction-ring," or "ring of Bandl," the line where the upper part of the uterus, which in protracted labour became contracted and thickened, joined the lower part, which was stretched and thinner.

AMORPHOUS ACARDIAC FŒTUS.

By G. Ernest Herman, M.B., F.R.C.P.; for G. Mallack Bluett, M.D.

This specimen was co-twin with a healthy child. The placenta was described as "very much broken up."

Mr. Doran noted that hitherto no example of an amorphous human fœtus was to be found in any museum in London. He had already indicated this fact in his account of the dissection of a mylacephalous fœtus (or rather acardiacus acephalus monopus) exhibited by Dr. Trestrail ('Transactions,' vol. xxxi, 1890, p. 4). It remained to be seen whether Dr. Herman's specimen might not be an acardiacus acormus, which was even rarer than acardiacus amorphus. He would like to know what bones were represented by the two small nodules of cartilage in the interior of Dr. Herman's specimen. In all acardiacs the relics of bone, cartilage, muscle, hair, &c., were anatomical as well as histological

structures, like the relics of a man who has been killed and mutilated. In this important point acardiacs differed from dermoid cysts, where the varied tissues were only histological, the bone representing no part of a skeleton, the teeth and hair belonging to no jaw and to no scalp.

A committee consisting of Mr. J. Bland Sutton, Dr. Griffith, Mr. Doran, and Dr. Herman, was appointed to report on this specimen.

EARLY PLACENTA WITH LOCALISED HYDATIDIFORM DEGENERATION.

By R. Boxall, M.D.

Dr. Boxall showed the placenta and membranes from a case of abortion occurring quite at the end of the third month of pregnancy. Embedded in the placenta was a cluster of grape mole cysts, and elsewhere extensive hæmorrhage had taken place into the placental tissue. The chorion itself was unaffected.

The patient from whom this specimen was obtained is twenty-eight years of age, the wife of a clergyman some twenty years her senior. Both enjoy good health. Though married six years ago, she became pregnant for the first time in August last, the vagina having been artificially dilated in the previous month on account of congenital narrowing. The period set in just after the operation, and a month later, after her return home, another took place. Four weeks afterwards she had a mere show. Otherwise her health during pregnancy had been good.

Just three calendar months after the cessation of the last period she began to notice a brownish vaginal discharge, but so slight was it that during its continuance she

had come to London, bent on sight-seeing. This discharge persisted for fourteen days, when she was seized with labour-like pains for a few hours. After these had passed off, on making an examination this mass was found mainly in the vagina, and what remained was separated from the uterus without difficulty. The membranes were incomplete. No fœtus could be discovered, nor could any clue be obtained as to the date at which both it and the liquor amnii had passed away.

It may be noted that the villous degeneration affects but a very limited area of the placenta, and would have escaped detection unless the placenta had been carefully examined, for none of the cysts appeared on the surface. Six of these cysts have been dissected out. In the fresh state, through their thin walls the pinkish fluid contents were visible. They were all attached by a pedicle of varying length, were oval in shape, but varied in size, the largest cyst measuring barely half an inch in its longest diameter.

In this instance gestation had advanced to the furthest period usually assigned to the onset of this degeneration, and, as might be expected, the villi of the chorion having already atrophied, the disease was limited to the placenta. It is difficult to understand why villous degeneration of such a limited extent as was here shown should in itself be incompatible with the continued life of the fœtus. It is rarely, if ever, found in association with children born alive. On the other hand, cysts on the fœtal surface of the placenta (which seem to be invariably produced in direct connection with subjacent blood-clot, as if serum had been expressed when the clot shrank) are of common occurrence, and are often found in considerable numbers and of large size with well-developed living children.

Dr. Boxall regarded myxoma fibrosum as a closely allied pathological condition and identical in character. In the present instance, however, as was evident in the fresh specimen, the fluid rather than the fibrous element predominated.

TUBERCULOUS SALPINGITIS.

By Frederick J. McCann, M.B., C.M.

SPECIMEN OF PROBABLE SUPERFŒTATION.

By W. S. Playfair, M.D.; for J. E. Prichard, M.B., Bristol.

The specimens which I have the honour of submitting to the Society are from a case which there is good reason to believe is one of true superfœtation.

The following is an account of the case.

Mrs. A— has had several miscarriages and one living child, now about six years old, and born at term.

On May 23rd, 1890, she had a severe attack of erysipelas of the leg. She believed that she was between three and four months pregnant, but was doubtful about it because during that time she had menstruated regularly. Four days later, on May 27th, she got out of bed, was taken with labour pains, and when seen had already been delivered of the larger fœtus, which was in the chamber utensil. The cord was broken off and the end hanging from the vagina. On following the cord up with the fingers, the second fœtus, contained in its bag of membranes, was found lying in the vagina. The placenta of No. 1 followed shortly afterwards without difficulty. The patient had a certain amount of fever for a few days subsequently, to be attributed, I think, to the erysipelas, which also might well have been the cause of the miscarriage.

On finding the double conception I questioned Mrs. A— more closely about her menstruation. Her courses usually appeared towards the end of the month, and she

had been quite regular in December, January, February, and March, although she thought that during the latter two months she was pregnant. In April she did not menstruate. I have good reason for saying that hers is not a case of bilobed uterus, since at a previous confinement I had to pass my hand into the womb to remove an adherent placenta, and I found nothing abnormal.

Both specimens were fresh and healthy-looking, neither having any appearance of being a "blighted" ovum.

My reason for asking permission to submit this case to your notice is that, so far as I can find, but one case only has been recorded in which menstruation has occurred during the early months of pregnancy coincident with superfœtation.*

A committee, consisting of Drs. Braxton Hicks, Galabin, and Playfair, was appointed to report on this specimen.

DOUBLE PYOSALPINX ASSOCIATED WITH FIBRO-MYOMA OF UTERUS.

By W. S. Playfair, M.D.

Dr. Playfair exhibited a specimen of double pyosalpinx associated with impacted fibro-myoma of the uterus. The patient had been admitted into King's College Hospital some months ago. She was the subject of multiple fibroid, intensely hæmorrhagic, the losses being excessively profuse, which had reduced the patient to the lowest ebb of prostration, rendering her quite incapable of any work. She had also much pelvic pain, severe pyrexia, and acute cystitis. The last was treated by washing out the bladder, and eventually cured. After some months the patient returned, no better as to her

* *Vide* Playfair's 'Midwifery' (2nd edition), vol. i, p. 183.

hæmorrhages, and still suffering much from pain. This was taken to depend on pressure from the still impacted fibroids, although it was remarked that there was the same continuous pyrexia. As the patient was quite incapacitated from work, and was most anxious to have some radical measures adopted that would enable her to gain her living, it was determined to remove the appendages by abdominal section, with the view of checking the growth of the tumour and arresting the hæmorrhage. This was done ten days since, and it was found that both tubes were dilated and distended with pus, the ovaries also being distended. It was interesting to remark that in this connection of diseased appendages with fibro-myomata, diagnosis from physical examination was impossible, the tubes being displaced and beyond reach, as shown not only in this case, but in another which he (Dr. Playfair) had recorded in the 'Transactions' for 1889. The entire subject was very important, and required careful investigation. He had observed that in many cases of pyosalpinx there was a slight but continuous pyrexia, which might possibly aid diagnosis.

Mr. Doran believed that many cases of so-called "inflamed fibroid" were really instances of inflammation of the appendages in association with fibroid disease of the uterus. Indeed, he had very frequently found the appendages unhealthy in operations for fibroid uterine tumours; and even if healthy at first, the development of a tumour in an organ with which they are so intimately connected exposed them to morbid influences.

Dr. Cullingworth, in reference to Dr. Playfair's remarks on the value of pyrexia in the diagnosis of pyosalpinx, said it should be known that pyosalpinx may, and not unfrequently does, exist with a persistently normal temperature. He intended before long to publish some cases affording evidence in support of this statement.

ON THE RELATION BETWEEN BACKWARD DISPLACEMENT OF THE UTERUS AND STERILITY AND ABORTION.

By G. Ernest Herman, M.B.Lond., F.R.C.P.,
OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

(Received March 12th, 1891.)

(*Abstract.*)

This paper is based on an analysis of 3641 consecutive cases in the London Hospital obstetric out-patient department. The author compares cases of backward displacement of uterus with those in which this displacement was not present.

He concludes—

1. That backward displacement of the uterus has no appreciable influence in the production of *absolute* sterility.

2. That backward displacement of the uterus is associated with a small amount of *relative* sterility.

3. That this association is chiefly in the later years of the childbearing period.

4. That backward displacement of the uterus has no appreciable influence in favouring the occurrence of *habitual* abortion.

5. That it is associated with a tendency to abortion, but that this tendency is not so great as that produced by some other causes.

6. That the tendency to abortion associated with backward displacement of the uterus is chiefly in the later years of the childbearing period.

The author does not think that mechanical conditions are sufficient to explain these facts. He regards the displacement, many of the symptoms associated with it, and the relative sterility and tendency to abortion, as alike manifestations of a condition of the general health.

I. Sterility.

In most text-books on the diseases of women, and treatises on sterility, retroversion and retroflexion are said to be among the causes of this condition. The chief exception to this is the 'Lectures on Sterility' by the late Dr. Matthews Duncan, the first work in which that subject was investigated in a scientific method. But Dr. Duncan did not adduce any evidence as to the relation between displacements and sterility, his position being only that he did not think there was reason to believe this relation one of cause and effect, much less proof that this was so.

In some books anteversion and anteflexion still find mention as displacements which cause sterility. I think sufficient evidence has been furnished to show that the position and shape denoted by these terms are those of the majority of healthy uteri. Their supposed effect in causing sterility, therefore, does not need discussion.

It is otherwise with backward displacements of the uterus, retroversion and retroflexion. By these terms I understand a uterus so inclined or bent backwards that the whole of its posterior surface can be felt by the finger in the vagina. It is not usual for the uterus, in healthy women, to occupy this position. In some cases we find that this position of the uterus is associated with symptoms which are relieved by supporting the uterus in, or nearly in, the axis of the pelvic inlet. These are sufficient reasons for speaking of this position of the uterus as a "displacement." They give plausibility to the view that the displacement may possibly interfere with the occurrence or completion of pregnancy. I have made no distinction, in the tables which follow, between retroversion and retroflexion. Some amount of bending is almost always present, and I do not think it important whether the bending is little or much. Any results

which either retroversion or retroflexion produces must be apparent in an investigation which includes both; unless it be maintained that the one neutralises the effect of the other, and I am not aware that anyone has supposed this.

How might it be proved that retro-deviation of the uterus causes sterility? How far is such proof possible?

Direct and indisputable proof seems to me impracticable in the human subject; one great reason being that the ascertainment of the condition in question is not permitted in healthy persons.

If the question concerned one of the lower animals, proof would be easy. We should examine the females before congress had taken place, note the cases in which the condition supposed to cause sterility was present, and then record how often pregnancy followed insemination, both in the cases in which the supposed cause of barrenness was present and in those in which it was not. This mode of inquiry cannot be applied to the human subject. But if those who practise gynæcology could ascertain, in the case of every virgin whom they had occasion to examine, whether fertility followed marriage, and whether there was any difference in respect of fertility between those whose uteri before marriage were retroverted or retroflexed, and those in whom it was not, very valuable evidence would be obtained. The result so gained would be subject only to the objection that any excess of sterility which the investigation showed might be due to the morbid condition which induced the patients to submit to examination.

Practical proof (or disproof) might be got from the effect of treatment if presented in a scientific form. If in a series of patients with backward displacements of the uterus, married to husbands producing living spermatozoa, and yet sterile for a sufficiently long period to make it improbable that fertility would occur without treatment, it were found that invariably, or in a large proportion of cases, rectification of the displacement,

without other treatment, was followed by pregnancy; this would afford a strong presumption that the displacement was the cause of the sterility. But I know of no one who has presented any evidence of this kind; all the literature in which cases are adduced to prove the effect of displacements on fertility, consists of selected cases, in which there is no more reason for thinking that the occurrence of pregnancy was favoured by the treatment designed to rectify the displacement, than for supposing that pregnancy occurred in spite of the treatment.

There is a less perfect method of investigation, which I have carried out. If two sets of cases be taken without any selection other than this, that one set (*a*) consists only of cases in which retroversion or retroflexion is present, while from the other set (*b*) cases of these displacements are excluded; then, if these displacements have any effect in preventing pregnancy, the number of sterile women ought to be larger among (*a*) the cases with backward displacements of the uterus than among (*b*) those without them.

This method of inquiry cannot give a perfect idea of the influence (if any) of these displacements, because the condition of the patient when first examined may not have been her condition throughout the whole period of sterility. But if retroversion and retroflexion have any influence at all upon fertility, *a* difference cannot fail to appear, although such difference may not represent the precise extent of the influence exerted by the displacements.

For this investigation I have used notes taken by myself of 3641 consecutive cases presenting themselves in the London Hospital Out-patient Department. From these I have first eliminated all cases of single women; of women not married long enough, or not married till too late in life, to become pregnant; and also some few of whom I had no record whether they had been pregnant or not. From the remainder, consisting of married women of whose number of children and miscarriages, or

the want of them, I have notes, I have constructed the tables which follow.

Dr. Matthews Duncan has pointed out (in the lectures above referred to) that sterility may be either absolute or relative. *Absolute sterility* is that in which "there is no child, no miscarriage, no abortion, however early." *Relative sterility* is that in which a woman produces children "in number not according to her condition, age, and length of married life."

A. *Absolute sterility.*

There is no duration of sterile married life (so long as the menopause has not been reached) which absolutely negatives the possibility of future pregnancy. All that one can say is, that while at the time of marriage the probability is in favour of a woman becoming pregnant, after a certain time has elapsed without it the probability becomes the other way; and the longer the patient has lived in sterile wedlock, the greater is the probability that she will continue sterile. As an absolute line cannot be drawn, I have taken as sterile all those who had been married long enough to make the scale of probability turn decidedly against the subsequent occurrence of pregnancy. Duncan quotes estimates of the time elapsing on the average between marriage and the birth of the first child, which vary from eleven and a half to seventeen months. The latter estimate, he thinks, shows "an over-estimated and erroneous retardation of primiparity." He states that "nearly two-thirds of women begin with families in the course of the second year," besides those that have children within the first year. From these statements, based on authentic data, it will be evident that if a woman has been married a year without any sign of pregnancy, the chances are very much against its subsequent occurrence. I have, therefore, reckoned as *sterile* all those who had been married twelve months or more without any sign of pregnancy.

Table I shows the number of absolutely sterile women (*i. e.* married a year or more without sign of pregnancy), the number of fertile women, and the proportion of sterile to fertile, in the first column among (*a*) the patients with retroversion and retroflexion of the uterus, in the second column among (*b*) other patients (cases of these displacements excluded).

TABLE I.

	Uteri displaced backwards.		Uteri not displaced.
Sterile	32	...	276
Fertile	308	...	2598
Sterile to fertile .	1 to 9·6	...	1 to 9·4

I have already said that these cases have been taken without any selection other than that already mentioned and indicated in the table. I therefore think that it may be taken that each set is probably composed of cases similar to the other set in all other respects than the presence or absence of displacements. My notes are not copious enough to allow me to demonstrate their similarity in every point that might be deemed important. But the most important feature in which the two sets ought to be alike (because, according to Duncan, it is the most important of all the causes of sterility) is the age at marriage. I have, therefore, shown in *Table II* the ages of marriage in the two sets of sterile women, those (*a*) with backward displacements of the uterus and those (*b*) without. It will be seen that there is no difference so great as to prevent the two sets of cases from being fairly comparable.

Table I shows that the proportion of sterile women is practically the same among patients with retroversion and retroflexion of the uterus as among those without these displacements. Both sets of cases were alike as to the class from which they were taken, viz. ailing women of the lower class ; and *Table II* shows that they were alike as to the usual age at marriage.

TABLE II.—*Age of sterile patients at marriage.*

	Uteri displaced backwards.			Uteri not displaced.	
16 or under	0			9	
17	1	7	Under 20	23	89
18	1			28	
19	5			29	
20	9			36	
21	0			34	
22	2	18	20—25 inclusive	21	142
23	3			18	
24	4			20	
25	0			13	
26	2			9	
27	1			11	
28	1			4	
29	1			2	
30	0			7	
31	0			3	
32	0	7	Over 25	1	45
33	1			1	
34	1			1	
35	0			1	
36	0			1	
37	0			2	
38	0			1	
40	0			1	

These facts give no support to the view that backward displacement of the uterus produces or influences absolute sterility.

I have already pointed out that this method of investigation is not perfect. But it is the only method for which I have available data. And I am not aware of any method of scientific investigation that has hitherto been applied to the relation between displacements and sterility. The result of this research, therefore, stands without anything to oppose it. Until reason to the contrary has been adduced, I think I am justified in saying that the evidence now before us shows that *backward displacements of the uterus do not produce or influence absolute sterility.*

Some may think it important that these patients were all drawn from one class, viz. the ailing and poor. I would therefore ask attention to the fact that the proportion of sterile marriages met with among them (1 in 9½) is very close to Dr. Matthews Duncan's estimate of the

proportion of sterile marriages in the population generally, viz. 1 in 10.

B. *Relative sterility.*

In estimating relative sterility we cannot reach trustworthy conclusions by comparing the two sets of cases as two large groups. Relative sterility can only be accurately ascertained when age and length of married life are taken into account, besides other factors which cannot always be ascertained, however carefully we inquire. Of these factors, age is the only one that can be ascertained with certainty in the unavoidable hurry of out-patient practice. To ascertain the length of married life (which should of course mean, not the time elapsed since the ceremony, but the length of time during which husband and wife had cohabited; periods which, especially among the lower classes, are not always the same) would need a detailed inquiry only practicable in a small number of cases. But if the cases be grouped according to age, we may expect that if large numbers be taken, the differences in length of cohabitation will be pretty equally distributed among the two sets of cases. We know of no reason why patients with backward displacements of the uterus should become widows earlier, or cease cohabitation sooner, than other women of the same class; and Table II shows that at least the sterile ones marry at about the same age.

Table III shows the number of children and miscarriages of patients with backward displacements of the uterus, and of patients without such displacements, arranged in groups of different ages.

Table IV is calculated from Table *III*, and shows the average number of children and abortions per patient in each class and at each age.

TABLE III.—*Number of children and miscarriages.*

Aged.	Uteri displaced backwards.				Uteri not displaced backwards.			
	No. of patients.	No. of children.	No. of abortions.	Total pregnancies.	No. of patients.	No. of children.	No. of abortions.	Total pregnancies.
Under 25 . .	48	78	14	92	270	414	162	576
25 to 29 . .	73	201	59	260	364	964	276	1240
30 to 34 . .	63	233	54	287	387	1658	436	2094
35 to 39 . .	61	329	80	409	313	1725	382	2107
Over 40 . .	62	341	81	422	720	4876	1073	5949

TABLE IV.—*Average number of children and abortions per patient.*

Aged.	Uteri displaced backwards.			Uteri not displaced backwards.		
	Children.	Abortions.	Pregnancies.	Children.	Abortions.	Pregnancies.
Under 25 . .	1·62	·29	1·91	1·5	·6	2·1
25 to 29 . .	2·75	·8	3·55	2·65	·76	3·41
30 to 34 . .	3·7	·87	4·57	4·3	1·13	5·43
35 to 39 . .	5·4	1·3	6·7	5·51	1·22	6·73
Over 40 . .	5·5	1·3	6·8	6·77	1·49	8·26

From these tables it appears—

1. That the difference in fertility between (*a*) patients with backward displacements of the uterus and (*b*) those without them is not great.

2. In patients below the age of forty the difference is so slight that it is practically nothing, and may be fortuitous. But in patients over forty there is a distinct difference, patients with backward displacements of the uterus being less fertile than the general average of other patients.

The obvious *primâ facie* conclusion to which these tables point is, that in women with backward displacements of the uterus fertility is exhausted slightly sooner than in the general average of patients; in other words, that *backward displacements of the uterus are associated with a small amount of relative sterility late in the child-bearing period.*

It might be urged that on both sides of Tables III and IV there is diminished fertility; that in a certain proportion of the cases without backward displacements the disease for which they sought treatment must have been of a kind which produced sterility,—such, for instance, as inflammation and occlusion of the Fallopian tubes; and that therefore the fact that patients with backward displacements of the uterus are not *more* fertile than the general average of patients shows that they produce some amount of relative sterility, which is not displayed by comparing them with patients suffering from disease of the generative organs. To this it may be replied that retroversion and retroflexion of the uterus do not exempt the patient from every other disease of the generative organs; and that therefore, in some cases of backward displacement with relative sterility, the arrest of fertility may have been due not to the displacement, but to some other concomitant condition. But, considering that women whose generative organs are quite healthy, and who have no displacement, seldom apply for treatment in the gynæcological department of an hospital, while women whose generative organs are quite healthy, except for displacement of the uterus backwards, not unfrequently do, I think it probably the case that if we were able to compare the fertility of the patients with backward displacements with that of healthy women at corresponding ages, it would be found that the fertility of the former was less than that of the latter; and, therefore, that the full amount of relative sterility in the patients with displacements is not displayed in Tables III and IV.

I know of no collection of figures showing the fertility

of healthy women at different ages. Dr. Matthews Duncan estimated the average number of children of healthy women living in wedlock throughout the child-bearing period (which, according to him, ends, on the average, at thirty-eight) at ten. This is a larger number than I find either for patients with backward displacements (5·5) or for patients generally (6·7). But to make the figures comparable, the collection of cases on which my Table is based should have omitted from it all those who married late, and who became widows or ceased to cohabit early. It will be seen in Table II that only one-fifth (52 out of 256) even of the sterile patients were married after twenty-five. As late marriage is one of the most influential causes of absolute sterility, the probability is that a larger proportion of fertile women were married at the most suitable age. As to widowhood, Mr. Radley (secretary to the Medical Assurance Society) tells me that of every 100 men aged twenty-five, on the average 81·6 would be living at the age of forty-five, leaving 18·4 as those whose wives would have become widows at some time during the twenty years. As the dates of widowhood would be spread over the whole twenty years (more occurring in the later than in the earlier years), the amount of sterility from this cause, combined with that from late marriage, would, I think, hardly account for the difference between 5·5 or 6·7 children and 10. I cannot give any opinion as to the proportion of cases in which the fertility is diminished by non-cohabitation.

Whitehead ('Abortion and Sterility') says that 747 women, patients of the Manchester Lying-in Hospital, whose average age was 32·08, had had 4775 children and 1222 abortions, which gives 6·43 children and 1·63 abortions per patient. The patients in my table aged between thirty and thirty-four inclusive had respectively 3·7 and 4·3 children, and ·87 and 1·13 abortions per patient, a less fertility than Whitehead's.

Priestley ('Pathology of Intra-uterine Death,' p. 8) gives the number of children and abortions of 400 patients of

his own aged over forty. They had 1783 children and 542 abortions, or 4·45 children and 1·35 abortions per patient. But these were women of the upper classes, whose fertility is known to be less than that of the proletariat.

I have tabulated according to age the number of children borne by 997 patients in the General Lying-in Hospital. I am only able to give the number of children, as I have no complete record of the number of miscarriages. The table can hardly be taken as an accurate representation of the fertility of the population generally, for I think it contains an undue proportion of first pregnancies ; but not having any standard of average fertility with which to compare it, I am unable to say how great the excess of first pregnancies is. And I have no record of the age of marriage. The excessive number of first pregnancies makes the fertility in the earlier years, those in which most first pregnancies take place, appear rather less than it really is. The figures are given in Table V.

TABLE V.—*Showing the number of children born of 997 patients in the General Lying-in Hospital, in groups according to age.*

Age.	No. of patients.	No. of children.	Children per patient.
Under 25 . .	420	702	1·67
25 to 29 . .	267	695	2·6
30 to 34 . .	165	686	4·15
35 to 39 . .	107	669	6·25
Over 40 . .	38	338	8·89

I admit that these data are very imperfect ; but such as they are, taken with the *a priori* inference based on the class of patients from whom my figures are taken, they lead me to think that the amount of relative sterility present in

the patients with backward displacements of the uterus is rather more than that displayed by the comparison I have made of their fertility with that of other ailing women.

It scarcely needs to be pointed out that the relative sterility shown of women over forty is due to the cessation of child-bearing in many cases *before* that age. Mechanical theories have been put forward to explain the supposed effect of retroversion and retroflexion of the uterus in causing sterility. It has been said that when the uterus is bent the spermatozoa cannot get past the bend in the canal; that, when the uterus is tilted so that the cervix lies more forward than usual, the semen lies in a pool in the vagina behind it, and so the spermatozoa cannot get to the os uteri; and that retroflexion of the uterus is often associated with a malformed vaginal portion and a small os externum. It is difficult to understand how a canal that will admit a probe, and let pass blood-corpuscles, should hinder the passage of a body smaller than a blood-corpuscle, and endowed with a power of spontaneous locomotion. The pool theory is untenable, seeing that the anterior and posterior vaginal walls are almost always in contact with each other, so that any pool of fluid in the cul-de-sac must bathe the anterior wall as well as the posterior. The difficulty of transit which the spermatozoa are supposed to experience is hardly reconcilable with the numerous cases on record of delivery with so-called "imperforate hymen;" that is, of cases of pregnancy with a condition of the vaginal orifice such that semen could not possibly have been deposited nearer the uterus than just within the lower part of the vagina; and yet the spermatozoa travelled up into the uterus, and possibly also along the Fallopian tube.

I mention these theories here to point out that no such explanations can in the least account for *relative* sterility only; mechanical conditions act alike at all ages, at the beginning of the childbearing period as well as at its end; in women who have never borne children as well as in those who have. There are two ways in which the

relative sterility associated with backward displacement of the uterus may be reasonably accounted for. One is that the interference with the circulation which takes place when the body of the uterus sinks into a Douglas's pouch which is narrow, and has tense, sharp lateral boundaries, produces changes in the endometrium, and makes it inapt to retain the ovum. As in only a small number of individuals Douglas's pouch is so formed as to be capable of interfering with the circulation in the uterus, only a small amount of sterility would be thus caused. I think that probably some sterility is so produced. The absence of any influence on absolute sterility is accounted for by the rarity of descent in the virgin as compared with the parous woman, especially at the usual age of marriage. But to make this view explain the occurrence of relative sterility chiefly *in the later years* of the childbearing period, while there is no especial preponderance of patients at this time, we must assume that changes in the endometrium are slow in production and lasting in character. This is not the case with the symptoms which the displacement causes, for many patients with these symptoms get perfectly well.

The other explanation is that the condition of general health which (*a*) causes that weakness of the muscular and fibrous structures supporting the uterus which permits the occurrence of descent, and (*b*) makes the nervous system so sensitive to slight local discomforts that the patient seeks treatment for them, is also associated with comparatively early exhaustion of reproductive power.

II. Abortion.

Retroversion and retroflexion of the uterus are stated in most text-books on midwifery to produce abortion. In the latest work on abortion, that of Dr. Gaillard Thomas, we are told that these displacements are the *great* causes of abortion, but no sort of evidence is given or referred to in

support of this assertion. Our 'Transactions' (vol. xiv) contain a paper by Dr. Phillips, a former secretary of this Society, "On Retroflexion of the Uterus as a Frequent Cause of Abortion," which has often been quoted. In that paper the author states his opinion rather than brings forward evidence. The reasons which influenced Dr. Phillips, and those who, in the discussion which followed, agreed with his views, seem to be two: first, that they had often observed abortion in cases of retroflexion; second, that in some cases of retroflexion of the uterus, in which the patient had repeatedly aborted, when the uterus was kept in the right position the patient went to term. The first of these reasons has no force unless it be shown that women with retroflexion of the uterus abort oftener than the general average of women. The second reason is only cogent if the sequence of events upon which it is based is found to occur in the great majority of cases in which the retroflexion is removed by treatment, and not to occur in the cases in which the displacement is left untreated.

Do patients with backward displacements of the uterus abort oftener than women in general? This raises the preliminary question, how often do pregnancies in healthy women end in abortion?

The most complete answer to this question that I know of is contained in Priestley's work on "The Pathology of Intra-uterine Death." He quotes Whitehead, who estimates that the frequency of abortion, as compared with pregnancies going to term, is as 1 to 7. From cases in his own practice, Priestley concludes that the ratio is about 1 to 4. In noticing the difference between these estimates we must remember (1) that Whitehead's is obtained from the histories of women who came under his notice simply because they had been delivered in a lying-in hospital; Priestley's from private patients, who presumably consulted him because they were out of health,—Whitehead's, therefore, from healthy women; Priestley's from the ailing. (2) Matthews Duncan has pointed out that the

period of fertility is often ended by a miscarriage. These terminal abortions are excluded from Whitehead's table. (3) Another difference is that Whitehead's patients were taken from the lower classes, Priestley's from the upper. For these reasons I think that the average frequency is probably rather less than the estimate of Priestley, and rather more than that of Whitehead.

I am unable to find any other answer than this as to the frequency of abortion among women in general, and I am unable to supply any further data.

Martin, of Berlin ('Deutsche med. Woch.,' No. 39, 1889), gives the course of pregnancy in 121 cases of backward displacement of the uterus. In 13 he was unable to watch the course (these may have aborted); in 7 labour came on prematurely, but not until the uterus had risen out of the pelvis; in 4 abortion came on, but in two of them Martin thought it had been provoked by injudicious interference. Without making any allowance for these, we have 4 out of 101, a proportion of abortions much smaller than even Whitehead, whose estimate is the smallest of those we have, found hold good of healthy women. If we assume that the 13 of whom Martin lost sight aborted, this would give 17 out of 114, or about 1 in 6·6, a proportion very close to Whitehead's estimate. It is possible that there may have been some unconscious selection of Martin's cases. This is the only attempt that I can find to ascertain by any scientific method the influence of backward displacement on abortion.

I propose to test the effect of backward displacements of the uterus in causing abortion in the same way as their effect in causing sterility, viz. by comparing cases (*a*) in which the uterus was displaced backwards with cases (*b*) in which it was not. If it be true that, as Thomas says, retroflexion is "*the great cause*" of abortion, a group of cases composed entirely of (*a*) those in which this great cause was present must show a larger proportionate number of abortions than one (*b*) from which it was entirely absent.

Table VI shows the proportion, at different ages and at all ages, of abortions to labours at term, among cases (*a*) with backward displacement of uterus, and among cases (*b*) in which this displacement was not present.

The figures show a greater frequency of abortion than either those of Whitehead or Priestley. I think the simple explanation is that they were taken exclusively from women ailing with disease of the generative organs.

Taking patients of all ages together, it will be seen that the average frequency of abortion is practically the same among (*a*) patients with backward displacement of the uterus as among (*b*) the other patients without such displacements. This is quite inconsistent with the view that backward displacement of the uterus is a frequent cause of habitual abortion.

TABLE VI.—*Proportion of abortions to delivery at term among cases.*

Aged.	Uteri displaced backwards.		Uteri not displaced backwards.	
	No. of cases.	Proportion.	No. of cases.	Proportion.
Under 25 . .	48	1 to 5·5	270	1 to 2·7
25 to 29 . .	73	1 to 3·4	364	1 to 3·5
30 to 34 . .	63	1 to 4·2	387	1 to 3·8
35 to 39 . .	61	1 to 4·1	313	1 to 4·5
Over 40 . .	62	1 to 4·2	720	1 to 4·5
Total . .	307	1 to 4·1	2054	1 to 4·13

But before accepting this result as wholly excluding any influence of displacement in occasionally producing abortion, we must remember that to take the whole history of the period of fertility may be to include years during which the patient was quite well and had no displacement;

and that when an average is compiled, this period of health may neutralise the figures derived from the time in which the displacement was present. It is hardly sufficient answer to this to say that it applies also to the cases which had no displacement.

TABLE VII.—*Termination of pregnancy preceding application for treatment in cases of backward displacement of uterus.*

Abortion.		Labour at term.
68	...	205

Or as 1 to 3.

To avoid this error, I have in Table VII taken only the pregnancy which preceded the patient's application for treatment, and shown the number of cases in which this pregnancy ended in abortion and in labour at term respectively. The result of this inquiry is, that in *these* pregnancies the frequency of abortion is greater than in the average of all the pregnancies either of patients with backward displacements or in those without them. But it is not so very much greater as to justify the assertion that the displacements are "the great causes" of abortion. If we take a number of ailing women, and take first the proportion of abortions throughout the whole married life of each, and then the proportion only while they were ailing, it is to be expected that the latter fraction would be the greater.

If I were able to adduce evidence that in these cases no other causes for abortion were present beside the displacement, the preponderance shown in Table VII might be held to prove the effect of the displacement. I cannot do this. The patients were not under my observation at the time of the abortion. The causes of abortion are very ill-understood; and no one has yet maintained that backward displacement of the uterus is a prophylactic against other uterine disease. But while admitting that error from the presence of unascertained causes of abor-

tion may vitiate a conclusion based on these figures, I yet think that until otherwise explained they justify the opinion that backward displacements of the uterus have some slight influence in favouring the occurrence of abortion.

Seeing that the general average frequency of abortion among the patients with backward displacements of the uterus is not greater than that of patients in general, it must be the case that the more than average frequency of abortion in the latest pregnancy is compensated for by a less than average frequency in the earlier pregnancies. The explanation of this I take to be that in most of these cases the uterus was healthy before the development of the displacement. The inference from it follows, that backward displacement of the uterus must be only rarely, if ever, the cause of *habitual* abortion. Even the frequency of abortion in the latest pregnancy of the patients with backward displacements is not so great as that observed in the youngest group of patients without displacement; which shows that there are other causes of abortion more powerful than displacement.

The investigation which I have related into the association of backward displacement of the uterus with sterility pointed to the conclusion that these displacements are associated with a small degree of relative sterility in the later years of the child-bearing period. The close connection which the late Dr. Matthews Duncan pointed out between the causes of sterility and those of abortion would make one expect that any tendency of these displacements to produce abortion would be exerted under the same conditions as the tendency to sterility. To ascertain whether this is so, I have taken the average age of the patients with backward displacement whose last pregnancy ended in delivery of a child, and those whose last pregnancy ended in abortion. Table VIII shows that the patients whose last pregnancy ended in abortion were on the average three years older than those whose last pregnancy ended in the birth of a child.

TABLE VIII.—*Average age of patients with backward displacement of uterus at date of end of pregnancy preceding application for treatment.*

Pregnancy ended in abortion.		Pregnancy went to term.
31·8	...	28·7

These figures point to the conclusion that *backward displacement of the uterus is associated with a slight tendency to abortion; that this tendency is greater in the later years of the child-bearing period, but that it is seldom the explanation of a long series of abortions.*

What is the explanation of this tendency to abortion? Is it directly due to the local consequences of interference with the circulation through the uterus? I think not, for two reasons. First, the conditions which produce interference with the circulation do not apply, or very rarely apply, to the pregnant uterus; for the size of the pregnant uterus prevents it from getting into a Douglas's pouch, the neck of which is narrow and bounded by tight ligaments. The abortion may be thought due to changes produced in the endometrium before pregnancy. We have no knowledge what these changes are; but, assuming that a morbid change exists, one would expect sterility as the more likely result. Secondly, because the mechanical conditions occur at all periods of life, and do not explain why abortion should be more frequent in the later than in the earlier years of the child-bearing period.

I take the tendency to abort, and the relative sterility, to be more probably alike manifestations of a condition of health which is associated with early failure of reproductive energy.

It has yet to be shown that if a uterus, displaced backwards and pregnant, be kept supported, abortion is at all less likely to take place than if it be let alone. The support of such a uterus I think is quite proper treatment, both on account of the comfort it gives to the patient, and for the purpose of preventing retention of urine; but I know of no evidence as to its effect on the tendency to abortion.

It might perhaps be suggested that the relation between backward displacements of the uterus and abortion is the opposite of that which I suppose; that instead of the displacement causing abortion, it is the abortion which causes the displacement. I am unable to see any good reason why abortion should be more favourable to the production of displacement than labour at term. The idea that it is, seems to me opposed by the fact that the tendency to abortion is, as has been shown, only in the later years of the child-bearing period. I cannot see why abortions in the later years of the child-bearing period should cause backward displacement of the uterus, and those in the earlier years not.

Dr. Inglis Parsons related two cases of abortion due to retroversion, and followed by pregnancy and delivery at full term after the uterus had been replaced and kept in position by a Hodge's pessary. The first patient was over thirty, and had been married for fifteen years without having children, although she had two abortions. The uterus was found to be retroverted. It was replaced and kept in position by a pessary. She shortly became pregnant, and was delivered of a child at full term. Since its birth, she neglected her uterus, went without a pessary, and had another abortion. In this case the abortions were undoubtedly due to the retroversion, while a child was born when the uterus was kept in position. The patient in the second case was twenty-two years of age. Soon after marrying she had a miscarriage at six months, followed a year later by an abortion. She then remained sterile for three years. The uterus was found retroverted. Within three months of its replacement she became pregnant, and was delivered last September at full term.

Dr. C. H. F. Routh thought that Dr. Herman's paper would be very useful to vital statisticians, and was full of interesting and important details. Still he could not but feel that there were underlying certain sources of fallacy which should be noted. Dr. Herman had quoted Dr. Matthews Duncan's work on sterility, but he (Dr. Duncan) had also fully quoted Dr. North on these sources of fallacy, and admitted their truth. Firstly, Dr. Herman had entirely neglected the age of the husband. Now it was known that fertility had a direct relation to the ages of one of the parties who married, if he or she were very much younger than the partner. For instance, a very old man with a very young woman could procreate, yet could not succeed with a woman of his own age. This was shown in Wild's Irish statistics,

and those of the Registrar-General in England. A man of some eminence, not long deceased, married at eighty a girl of seventeen, and became the father of a child within the year. Secondly, fertility in a woman depended upon the congress with a man who was capable. Certain American authorities, notably Gross, had shown that a large number of men were incapable of impregnating women, from various causes. Thirdly, owing to the spread of certain ideas among the lower orders, bad habits designed as checks to population had recently become prevalent in England. Fourthly, divorce cases also proved that some women and men could not procreate with each other, but when divorced could very effectually do so with others, showing that fertility needed special adaptations. Fifthly, Dr. Herman had not referred to syphilis as one of the commonest causes of abortion. These women ought to have been examined on this point. Sixthly, on one other point he did not agree with Dr. Herman. If semen was allowed to remain in the vagina for a very short time, even three or four hours, the acid leucorrhœa would destroy the vitality of the spermatozoa. This had been shown by French experimenters. They could only live in alkaline juices, although they retained vitality longer in some than in other ordinary acid fluids.

Dr. Graily Hewitt expressed his appreciation of the valuable and philosophical paper just read. As a contribution to the solution of the question discussed, he would mention that in 139 cases of retroflexion in married women, observed by himself in private practice, he had found 35, or 25 per cent. of them, absolutely sterile. This gave the proportion of 1 in 4, whereas in Dr. Herman's cases observed in hospital practice the proportion was 1 in 9·6. In regard to relative sterility, his own statistics, like those of Dr. Herman, showed that backward displacements had an effect in causing relative sterility: for in 21 cases out of 139 there had been one child only, and an average duration of eight years of sterility since; and in twelve cases there had been two children, with an average of 5·1 years of subsequent sterility. He considered Dr. Herman's paper would be found to favour the conclusion that changes in the uterine form are liable to interfere with the due performance of uterine functions.

Dr. Leith Napier said that he had listened to Dr. Herman's paper with great interest. The subject discussed was important, and had been treated very exhaustively. He felt sure the author would permit him to point out that, in consequence of some defects in the tables, the deductions were to some extent obscured. Dr. Napier then dealt with the figures referred to, and explained that his object in doing so was solely to insure the precise accuracy of a paper which would necessarily influence the profession. The fertility of aborting women was high. In

vol. xxxii of the 'Transactions' was contained Dr. Napier's paper on 'Habitual' Abortion. These cases had an average fertility of 10·383, which harmonised with the late Dr. Matthews Duncan's calculation. There was another way of determining the relationship of retro-displacement to abortion, viz. by estimating the number of aborting women in whom uterine displacement was an evident clinical condition. This had been found to be 9·090 per cent. Dr. Gaillard Thomas in his recent work had theorised that there were but two great causes of abortion, syphilis and retro-displacement. Dr. Leith Napier ventured to think he had conclusively shown that syphilis was a much less important factor than Thomas esteemed it; and now, from another standpoint, Dr. Herman had with equal certainty demolished the contention with regard to retro-displacement.

Dr. Walter Griffith said that the results of Dr. Herman's investigations were, within certain limits, of the greatest practical importance. He would offer one criticism on the method of investigation adopted by him, and would ask Dr. Herman if the examination of the uterus in all these cases had been made before the first pregnancy or after several, it was obvious that it was not satisfactory to have to draw inferences from conditions which might or might not have been present before the examination was made. A woman with a retroverted uterus, discovered after several pregnancies, was only available for the purposes of such an investigation after the examination had been made.

Dr. Herman said that two cases proved nothing. The sequence of events related by Dr. Inglis Parsons might be merely coincidence. He quite recognised all the causes of sterility mentioned by Dr. Routh; but he asserted that if we took so large a number of cases as 3000, and divided them into two sets irrespective of these things, the strong probability, amounting to almost certainty, was that such conditions as those mentioned by Dr. Routh would be found, if we could ascertain them, equally distributed among the two sets. They would occur with equal frequency among those with backward displacements and those without them. Dr. Herman's argument was, therefore, not invalidated. He had, before writing this paper, carefully studied Dr. Hewitt's able publications on the subject; but he had not quoted Dr. Hewitt's figures, because he thought them misleading owing to this fallacy; probably Dr. Hewitt's reputation led a good many of the patients to consult him on account of sterility, and therefore his figures showed a large percentage of sterility. The discrepancy in the numbers between Tables I and III was because in the latter table some cases, in which he had not a record of the precise number of children and abortions, although he knew them to be fertile were omitted.

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